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CONTENTS

Contents of 'MILITARY HISTORY JOURNAL', January 1983 . . . . .	1
Wartime Operations: Operational Art in Operation 'Iskra', 12-30 January 1943 (Yu. Perechnev) . . . . .	3
Wartime Operations: Offensive Tactics in Breaking the Leningrad Blockade (L. Zaytsev, A. Borshchov) . . . . .	11
Wartime Experience in the Organization of the Air Forces (V. Chernetskiy) . . . . .	18
Party-Political Work, 'The Lenin Model' in the Ukrainian Fronts (A. Verbilo) . . . . .	26
U.S. Submarine Combat in Pacific in World War II Discussed (A. Usikov) . . . . .	35
Commentary on Evolution of U.S. Views of Nuclear Weapons in Combat and Operations (A. Slobodenko) . . . . .	42
History of Defense Against Chemical Weapons Reviewed (V. Yakubov, N. Skibinskiy) . . . . .	48

CONTENTS OF 'MILITARY HISTORY JOURNAL', JANUARY 1983

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 1, Jan 83 (signed to press 28 Dec 82) p 2

[Full-text translated articles published in this report are indicated with an asterisk (\*)]

[Text] Contents

Page

"The Communist Party -- Inspiring Force and Organizer of the Victories of the Soviet People"--N. Pankratov and V. Semin . . . . . 3

THE GREAT PATRIOTIC WAR

\*"Operational Art in the 'Iskra' Operation"--Yu. Perechnev . . . . . 13

\*"Tactics of Offensive Combat in Breaking Through the Blockade of Leningrad"--L. Zaytsev and A. Borshchov . . . . . 20

\*"Tendencies for Changes in the Correlation of Types and Commands of Aviation"--V. Chernetskiy . . . . . 26

\*"The Ideas of V. I. Lenin, the Image of the Leader, Inspired Deeds and Led to Victory"--A. Verbilo . . . . . 32

PROFICIENCY AND HEROISM

"Expert at Reconnaissance"--I. Bashkirov . . . . . 39

MEMOIRS

"On Instructions by Rear Services Headquarters"--S. Skryabin . . . . . 43

IN FOREIGN ARMIES

"Thwarting Japan's Plans for Aggression Against the USSR in 1942-1943"--A. Savin . . . . . 48

\*"Group Actions by U.S. Submarines in the Pacific During World War II"--A. Usikov . . . . . 57



*"The Evolution of American Views on the Use of Nuclear Weapons in the Engagement and Operation"--A. Slobodenko . . . . .	63
---	----

#### SCIENTIFIC REPORTS AND INFORMATION

"S. M. Kirov on the Sociopolitical Problems of War and the Army"--A. Yershov . . . . .	69
--	----

*"From the History of Defense Against Chemical Weapons"--V. Yakubov and N. Skibinskiy . . . . .	74
---	----

"Weapon of Winners"--Ye. Simakov . . . . .	79
--	----

#### MEMORIALS TO COMBAT GLORY

"Battle of Stalingrad Panorama"--A. Baklanov . . . . .	83
--	----

#### HISTORIOGRAPHY AND REFERENCE SCIENCE

"Chronicle of an Exploit"--I. Klimov . . . . .	87
--	----

#### CRITICISM AND BIBLIOGRAPHY

"Military Issues in additional Volumes of the Writings of Karl Marx and Friedrich Engels"--F. Ryabov . . . . .	90
--	----

#### MILITARY HISTORY DATES

"Army General A. P. Beloborodov"--S. Rudenko . . . . .	93
--	----

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WARTIME OPERATIONS: OPERATIONAL ART IN OPERATION 'ISKRA', 12-30 JANUARY 1943

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 1, Jan 83 (signed to press 28 Dec 82) p 13-19

[Article, published under the heading "The Great Patriotic War," by Docent and Doctor of Historical Sciences Col Yu. Perechnev: "Operational Art in the 'Iskra' Operation"; passages rendered in all capital letters printed in boldface in source]

[Text] In the winter of 1943 the forces of the Leningrad and Volkhov fronts, working in coordination with the air forces and artillery of the Red-Banner Baltic Fleet in Operation "Iskra" (12-30 January), defeated in detail an enemy force in the area of the Shlisselburg-Sinyavino salient and broke through the blockade of Leningrad, which constituted a turning point in the battle for this city. The experience of this operation is instructive from the standpoint of development of Soviet art of warfare. It was studied and subsequently taken into consideration, especially in the Leningrad-Novgorod (14 January-1 March 1944) and Vyborg (10-20 June 1944) operations, which resulted in total raising of the blockade of Leningrad.

\* \* \*

Headquarters, Supreme High Command [Hq SHC] was closely following the events at Leningrad and was well aware that breaching of the blockade was a difficult task. It was necessary to organize and mount an offensive by the Leningrad (Lt Gen, Col Gen effective 15 January 1943, L. A. Govorov, commanding) and Volkhov (Army Gen K. A. Meretskov, commanding) fronts, with the objective of breaking through the enemy's strongly fortified defense, involving an ice crossing of the Neva, defeating in detail the enemy force south of Lake Ladoga, on the Shlisselburg-Sinyavino salient, and reestablishing land lines of communication linking Leningrad with the rest of the country. Achievement of the objectives would require enormous efforts by the combat forces and a high degree of skill on the part of the Soviet command authorities.

In a period of 16 months the Hitlerites had established in the vicinity of Leningrad an elaborately fortified defense which was saturated with large numbers of weapons. Swampy areas of peat-harvesting operations, intersected by drainage ditches, presented difficulties to tank and artillery movement in the area of the Shlisselburg-Sinyavino salient. Worker settlements situated along the roads, with masonry structures, had been adapted by the enemy for defense.

Tracts of forest on the flanks of the salient, with dominating high ground by Sinyavino, favored concealment, created conditions for good terrain surveillance, and facilitated the Hitlerites' task of organizing delivery of fire and counterattacks into the flanks of attacking forces. Solid forest to the south of Sinyavino enabled the enemy to move reserves and units undetected from adjacent sectors. The enemy established on the Shlisselburg-Sinyavino salient a system of centers of resistance and numerous strongpoints, which were linked by trenches and switch positions and saturated with weapons. The enemy position running along the left bank of the Neva consisted of strong centers of resistance linked by three continuous standard trenches.

Forward of the main line of resistance and positions at defensive depth, the Hitlerites laid minefields and constructed wire-fence obstacles, hedgehogs, posts, and ditches. The high, steep slopes of the left bank of the Neva were mined and in places covered with ice. All obstacles were covered with small-arms and mortar fire.

IN PLANNING AND PREPARING FOR THE OPERATION, Hq SHC took into consideration the fact that the enemy's main forces and reserves were brought into action as a result of the Soviet offensive which began in the winter of 1942/43 in the Donbass, Northern Caucasus, and Voronezh areas. Combat operations of the Leningrad and Volkhov fronts to break through the blockade prevented the enemy in turn from moving troops from this area to other sectors, which helped ensure the success of the Soviet offensive in the south and in the Voronezh area.

It was believed that the winter might prove to be the most favorable for this operation: it would not be necessary to concentrate large quantities of equipment for crossing the Neva. In addition, tanks and artillery could be extensively employed in winter on the frozen swampy ground.

The main axis of advance was skillfully selected -- the shortest line between the fronts (12-15 km). This would make it possible to deliver artillery fire to the entire depth of the enemy's defense. The fronts' battle groups, with flanks secured on the north (Lake Ladoga), were to attack on this axis.

In order to accomplish operation objectives, it would be necessary to establish a substantial superiority in men and weapons on selected axes and thoroughly to ready the troops for the breakthrough. Hq SHC beefed up the forces designated to take part in Operation "Iskra." As a result, troop strength in the Volkhov Front was increased by 22 percent, artillery by 20 percent, and mortars by 30 percent. In the Leningrad Front troop strength was increased by 10 percent, while the quantity of combat equipment remained almost unchanged.<sup>1</sup>

Establishment of powerful battle groups in the fronts determined the success of the operation to a great degree. On instructions from Hq SHC, two battle groups were formed to break through the blockade: in the Leningrad Front it consisted of the 67th Army (Major Gen M. P. Dukhanov, commanding), which had in its attack echelon four rifle divisions reinforced with a tank battalion, four to five artillery and mortar regiments, a tank-destroyer regiment, and one or two engineer battalions each. The support echelon contained two rifle divisions.<sup>2</sup>

In the Volkhov Front the battle group consisted of the 2nd Assault Army (Lt Gen V. Z. Romanovskiy, commanding). The attack echelon contained six divisions, each reinforced by 3-5 artillery regiments and combat engineers, one division reinforced with a heavy tank regiment, and one division reinforced with a tank brigade. Four rifle divisions were assigned to the support echelon, with two rifle divisions placed in reserve.

The battle groups of both fronts were disposed in depth. This tactical order of battle was fully in conformity with the conditions of attacking a strongly fortified defense. Almost half of the manpower and weapons were in the support echelons and reserves, in order to build up offensive pressure. Strongly concentrating forces in the breakthrough sectors, the Soviet command authorities achieved superiority over the opposing enemy forces as follows: 4.5-fold in infantry, 6-7-fold in artillery, 10-fold in tanks, and twofold in aircraft.<sup>4</sup>

In view of the complexity of breaking through a strongly fortified enemy defense, the difficult terrain conditions, as well as the fact that the troops lacked adequate experience in offensive fighting, the average rate of advance was scheduled to run from 2 to 4 km per day. Hq SHC and the military councils of the fronts devoted considerable attention to organization of teamwork and cooperation between battle groups in the course of the operation. Coordination of the actions of the fronts' forces was assigned to MSU K. Ye. Voroshilov and Army Gen G. K. Zhukov.

Early in January the military councils of the 2nd Assault Army and the 67th Army discussed at a joint meeting matters of teamwork and cooperation in mounting the operation. The formulated coordination plan specified that if any battle group failed to reach the designated link-up point on schedule (on the line Worker Settlements No 2 and 6), the other battle group was to continue a determined advance to link-up. If units of different fronts were simultaneously approaching a given strong point or enemy position, overall direction would be assumed by that commander with the greater forces. They also established a uniform timetable for commencing the offensive and a procedure for maintaining communications between armies and mutually providing headquarters staffs with information. Wire communications (via a cable laid across the bottom of Lake Ladoga) and radio communications were set up between the armies for this purpose.

A timetable was established between the headquarters staffs of the armies for mutual exchange of situation reports and intelligence summaries every four hours. The headquarters of the fronts exchanged liaison officers, who were assigned the task of additionally informing the corresponding commanding generals on progress in the combat operations of the forces advancing toward one another.

Purposeful training and preparation of troops was important for the success of the operation. Numerous exercises and regular training drills for the troops as well as rehearsal of modes of conduct of an offensive engagement greatly improved the tactical skill of the combined units and units and ensured the success of combat operations. For example, tactical training in the 67th Army initially



was conducted at the platoon and company level. This was followed by battalion exercises. At the end of November a defensive zone was set up in a training area, a zone similar to that which the troops would be penetrating. Regimental live-fire exercises were conducted in this rehearsal area. The commanding general of the Leningrad Front conducted a war game designated "Penetration of a Deliberate Enemy Defense by a Combined-Arms Army, Involving a River Crossing in Winter" from 15 to 18 December. Units of the 2nd Assault Army prepared in similar fashion. The regiments, divisions and headquarters of both large strategic formations regularly held command and staff exercises, war games and training conferences for officers and general officers, at which all details of the forthcoming operation were rehearsed. Drills and exercises were conducted under the supervision of representatives of Hq SHC and the command authorities of the fronts and armies.

Reconnaissance and intelligence efforts were stepped up during preparation for the operation. The fronts' reconnaissance aircraft photographed the entire enemy defensive area, on the basis of which 200 aerial-photograph plotting boards were prepared, with a total ground coverage of more than 2000 square kilometers. Photomosaics and detailed maps of the enemy's defenses were provided to all commanders down to the company level inclusive. Less precise data were available on the enemy's fire plan, especially on the flanks of the breakthrough sectors, which had a negative effect on the progress of penetration. Units of the 86th Rifle Division, for example, which were advancing on Shlisselburg, while crossing the Neva came under heavy, withering fire by artillery, mortars and machineguns which had not been detected by aerial reconnaissance. As a result they were stopped and forced to cross over to the left bank in the zone of the 136th Division.

Secrecy in preparing for the operation was achieved by the fact that planning documents were drawn up by a strictly limited number of persons, and all correspondence and telephone traffic on matters pertaining to preparations for the operation were strictly prohibited. Necessary instructions to the troops would be communicated directly to them orally by their commanders. Redeployment and concentration of troops would be accomplished only during hours of darkness or in aircraft-grounding weather. Seeking to divert the enemy's attention from the actual main axis of advance, the command authorities of the Volkhov Front conducted phony preparations for an advance in an area 30-35 km southeast of Mga. When troops began moving into the assembly area (2-3 days prior to commencement of the operation), however, the enemy began to figure out where the attack was to take place and took certain measures to raise the level of combat readiness of his forces. But the German-fascist command authorities were unable to determine in advance the place, the force of attack, and the time at which our forces would turn to the offensive.

Combined units and units of all combat arms and branches of service took part in the offensive to break through the blockade of Leningrad. But infantry bore the main brunt of the fighting. This was dictated by the swampy, forested nature of the terrain and the changeability of the weather, which sometimes made it impossible effectively to utilize equipment.

ARTILLERY PLAYED AN ENORMOUS ROLE IN BREAKING THROUGH THE ENEMY DEFENSE. The artillery force grouping possessed specific features which differed from previous operations. In preparing for the breakthrough, one month prior to commencement of penetration the artillery of the Leningrad Front proceeded with deliberate preliminary destruction of targets. This activity was conducted along a broad frontage and could not give away the axis of the forthcoming attack. In the preparatory period a total of 80 earth-and-timber weapon emplacements, 35 machinegun nests and dugout shelters, and 8 observation posts were destroyed just in the breakthrough sector.<sup>5</sup> Although the enemy proceeded to repair the damage, his defense was weakening, and for a protracted period of time the enemy's troops were in a continuous state of tension.

In the 67th Army the army long-range artillery group, consisting of four gun artillery regiments and two coast defense battalions, was assigned the counter-battery mission. Rocket launcher units were organized into an independent group, which were designated to reinforce the support echelon after it was committed to battle. Average artillery density in the breakthrough sector ran 144 guns per kilometer of frontage.<sup>6</sup> In the rifle divisions, in addition to artillery infantry support groups, countermortar groups were formed, which was a new development in the evolution of artillery force grouping. Direct-fire artillery pieces were to neutralize and destroy enemy weapon positions and personnel on the main line of resistance and to a depth of 200-300 meters from the far bank of the Neva. Fire at the enemy's main line of resistance from indirect gun positions would inevitably result in demolishing the ice along the bank and thus would thwart the assault phase. Artillery preparation for the assault phase was scheduled to run 2 hours and 20 minutes. Close support of the infantry and tank assault was to be provided with a rolling barrage to a depth of 1 kilometer, followed by successive concentrations of fire. When the troops advanced on the ice, it was decided to establish a barrage fire zone at a distance of 200-500 meters from the river, which on the terrain coincided with the first rolling barrage line.

An artillery density of up to 180 guns and mortars per km of frontage was established on the main axis of advance of the 2nd Assault Army. The artillery force grouping was the same as that in the 67th Army. Artillery preparation was scheduled to run 1 hour and 45 minutes.

The increase in artillery density created objective preconditions for resolving such an important problem as simultaneous suppression by artillery fire of all major targets in the enemy's defense. This was particularly important since friendly aircraft, as a consequence of adverse weather, could not always provide close support to ground troops. Experience convincingly demonstrated that the principle of forming artillery groups by specific designation and nature of assigned missions does not satisfy the requirements on artillery, for command and control of artillery as well as coordination with infantry and tanks in the engagement and operation as a whole, especially with offensive exploitation, were made difficult. In a number of instances coordination between the units and combined units of the battle groups of the Leningrad and Volkhov fronts on the one hand and artillery on the other was disrupted in the course of the fighting, making it necessary to change the artillery force



grouping and procedure of command and control. Thus quantitative and qualitative growth of artillery and an increase in the scale of maneuver and massing of artillery on the main axes of advance dictated the necessity of seeking new modes of control of artillery force groupings. As we know, soon artillery groups began to be formed not on the basis of specific designation but according to an organizational-tactical principle.

The duration of artillery preparation increased in comparison with previous operations. This was dictated by the nature of the enemy's defense, which was well fortified. Naturally considerable time was expended on reliable neutralization of the defense, especially on destroying defensive works. Prolonged artillery preparation gave the enemy the opportunity to undertake countermeasures and to prepare to repulse our attacks, as a result of which the element of offensive surprise was lost to a certain degree. For this reason there subsequently began a search for ways to shorten artillery preparation time.

Serious difficulties were encountered in employment of the artillery of the fronts and fleet. The forested terrain and bad weather greatly limited observation. This dictated the necessity of delivering area fire. Wherever the enemy had constructed heavy defensive works, the 45 and 76 mm guns assigned to direct-fire missions proved to be insufficiently effective. It was necessary to enlist the services of a substantial number of heavier guns.

EMPLOYMENT OF ARMORED TROOPS IN THE OPERATION ALSO POSSESSED SIGNIFICANT FEATURES. The swampy, forested terrain and shallow depth of the operation made it impossible to utilize in full measure a most important performance feature of tanks -- their mobility. Therefore all tank combined units and units in the 67th (3 tank brigades and 2 independent tank battalions) and the 2nd Assault (4 tank brigades, an independent breakthrough tank regiment and 4 independent tank battalions) armies were employed for close support of infantry. Tank subunits and units with attached combat engineer teams were distributed approximately evenly between the attack and support echelons. For the most part light tanks were assigned to the attack echelon, as they were capable of crossing the Neva without reinforcing the ice.

IN PLANNING COMBAT EMPLOYMENT OF AIR FORCES, principal attention was focused on providing reliable air cover for the fronts' battle groups, at the same time delivering massive bombing and strafing attacks on the major centers of resistance. In view of the small number of available bombers and ground-attack aircraft, the command authorities of the Leningrad Front decided to mount strikes during the period of softening-up for the assault phase only on certain enemy strongpoints at the forward edge of the battle area, as well as enemy artillery positions. In the course of the offensive, enemy reserves and artillery were the main target of suppressive fire. Close support of ground troops was provided on request by small groups of ground-attack aircraft.

Emplacements for guns designated to deliver direct fire were constructed during the preparation period, and two roads for each division were laid. Area mine clearance was conducted in the breakthrough sector with the aid of specially-prepared concentrated explosive charges, since manual area mine clearance was impossible in winter conditions. Deckings made of logs and boards were prepared

for moving across the river medium and heavy tanks, which were too heavy for the ice to hold. These devices successfully passed preliminary tests.

The operation was characterized by fierce fighting. In spite of the enemy's exceptional stubbornness, however, and in spite of continuous enemy counter-attacks, our troops smashed the enemy's resistance, broke through all fortified positions, and destroyed a number of powerful strongpoints, displaying excellent combat proficiency, courage and daring, a high degree of aggressive enthusiasm and persistence in carrying out their assigned missions.

Well organized and purposeful party-political work played an enormous role in successfully breaking through the blockade. The main element in the activities of political agencies, party and Komsomol organizations in the preparatory period was instilling in the men firm resolve to crush the enemy, to break through the blockade of Leningrad, and thus to improve the city's situation. The troops of the 67th Army were visited by the secretaries of the city party committee, city committee lecturers, representatives of the Leningrad Soviet, and worker delegations. They told about the incredibly difficult conditions in which the people of Leningrad were existing, and they called upon the men to carry out their duty to liberate the city. Ideological-indoctrination work played an enormous role in preparing the men's morale. Immense patriotic enthusiasm was noted among the men of the combined units and units which were readying for the offensive. In the course of the operation commanders and political workers, army and navy Communists, remaining constantly among the soldier masses, mobilized the men by means of ardent Bolshevik word and personal example of fearlessness, courage and daring to accomplish optimal execution of assigned missions.

\* \* \*

A plan to break through a blockade of a major industrial city and port by simultaneously attacking the ring of encirclement from without and within was devised and executed for the first time in the history of modern warfare in Operation "Iskra." This attested to substantial growth in the operational-tactical skill of Soviet command cadres and the high degree of fighting efficiency of our troops.

An example of thorough and comprehensive preparation for an operation and the valuable experience gained by Soviet troops in crossing a large river on the ice and breaking through a strongly fortified defense constituted a new contribution to Soviet art of warfare. Experience in organizing coordination between battle groups, as well as with the forces and equipment of the Red-Banner Baltic Fleet and the Ladoga Naval Flotilla, assumed great importance. It is evident how much importance was attached to this problem from the fact that an Hq SHC representative was assigned to each front. Also important is the fact that the Red-Banner Baltic Fleet and the Ladoga Naval Flotilla were operationally subordinate to the military council of the Leningrad Front. This ensured favorable conditions for the most effective and expedient employment of naval aviation and the massive firepower of coastal and shipboard artillery in support of ground troops. During the period of preparation for the operation the Ladoga Naval Flotilla, under the command of Capt 1st Rank

V. S. Cherokov, working under difficult ice conditions, hauled troops, combat equipment and supplies to reinforce the 67th Army. Just in the period from 13 December 1942 to 8 January 1943 the flotilla's ships transported 38,830 men with weapons and equipment, artillery pieces and transport vehicles, plus 1,587 tons of various supplies.<sup>7</sup>

The experience of the operation demonstrated that penetration of a strongly fortified defense achieves the objective only when the pace of penetration and buildup of troop efforts exceed the pace of counter maneuver by the defending forces. The troops of the 67th and 2d Assault armies did not fight at night, endeavoring to consolidate current positions. Therefore the adversary had time to move up additional forces to those points where the day's fighting had been the fiercest. The rate of advance was also slowed because the support echelons in both battle groups would be engaged across a wide frontage, which tended to dilute troop strength. Thus the operation once again demonstrated that a powerful initial attack, conduct of an offensive day and night, without pauses or halts, and buildup of the offensive drive on the most important axes with support echelons and reserves are essential in order to achieve a rapid rate and continuity of advance.

In spite of the development of nuclear missile weapons in the postwar period, further development and improvement of conventional weaponry and saturation-equipping forces with weapons, the experience of Operation "Iskra" is still of significance today. It shows that the success of a breakthrough and the rate of penetration are determined not only by densities of men and weapons and by establishing superiority over the adversary, but also by the quality of preparations for the breakthrough, by skilled troop control, by effective employment of weapons, combat equipment, and troops, by gaining the element of offensive surprise, by maintaining close coordination among the combat arms, and by prompt and timely buildup of efforts.

#### FOOTNOTES

1. "Bitva za Leningrad" [The Battle of Leningrad], Voenizdat, 1964, page 238.
2. One division (the 46th) was defending on the right bank of the Neva.
3. Footnote omitted.
4. "Sovetskaya Voenennaya Entsiklopediya" [Soviet Military Encyclopedia], Vol 6, Voenizdat, 1978, page 574.
5. "Sovetskaya artilleriya v Velikoy Otechestvennoy voyne 1941-1945 gg." [Soviet Artillery in the Great Patriotic War, 1941-1945], Voenizdat, 1960, page 196.
6. Central Archives of the Ministry of Defense, Fund 217, List 221, File 3421, Sheet 25.
7. "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II, 1939-1945], Vol 6, Voenizdat, 1976, page 121.

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#### WARTIME OPERATIONS: OFFENSIVE TACTICS IN BREAKING THE LENINGRAD BLOCKADE

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[Article, published under the heading "The Great Patriotic War," by Col L. Zaytsev and Maj A. Borshchov: "Tactics of Offensive Combat in Breaking Through the Blockade of Leningrad"]

[Text] Combat operations by the combined units and units which broke through the enemy force south of Lake Ladoga in the course of Operation "Iskra" are distinguished by a number of specific features. First of all, this was the first occasion in the war where Soviet forces broke through a deeply disposed, strongly fortified trench defense saturated with weapons. Secondly, in the course of this operation combined units of the Leningrad Front had to cross the Neva (river width 400-600 meters, depth up to 12 meters, ice thickness 35-40 cm), which was fully under hostile observation and fire. Thirdly, the density of enemy troops on the Shlisselburg-Sinyavino salient was twice that in other defended areas occupied by the German 18th Army (8-12 km per division as compared with 20 km).

It is also important to stress that the offensive was conducted in the difficult conditions of swampy forested terrain. MSU K. A. Meretskov wrote the following in this regard: "I have rarely encountered terrain less suited to an offensive. I shall never forget the boundless expanses of forest, the marshy swamps, the water-flooded peat bogs, and the miserable roads."<sup>1</sup> The defense was reinforced with antipersonnel and antitank obstacles and continuous minefields, intersected by deep drainage ditches from peat-harvesting operations. There were extremely few roads in the area.

The practical experience of combat operations to defeat in detail the enemy's Shlisselburg-Sinyavino force gives reason to believe that the success of the offensive was dependent to a significant degree on skill in breaking through the enemy defense.

Analysis of the decisions of the commanders of the rifle divisions which were elements of the battle groups of the 67th Army and the 2d Assault Army suggests the conclusion that main attacks were launched both against a weak point and against a strong point in the enemy's defense. For example, the 268th, 136th,



86th, and 256th Rifle divisions launched their attack against a less fortified sector of the enemy defense, simultaneously sealing off powerful centers of resistance with a portion of their forces. On the other hand, the main attacks of the 45th Guards, 372nd and 327th Rifle divisions were selected to hit the strongest point in the defense of the German-fascist forces. The diversity of decisions was dictated by the specific features of the terrain, in particular its suitability for employment of the various combat arms.

This operation displayed the endeavor on the part of division commanders to achieve maximum utilization of men and weapons, which was due chiefly to the nature of the defense of the German-fascist forces. To achieve a decisive superiority in men and weapons, the greatest quantity of organic and attached weapons was moved into the sectors of those regiments which were attacking on the divisions' main axes of advance. The 1238th Rifle Regiment, for example, which was mounting the main attack in the zone of the 372nd Rifle Division, was reinforced with a machinegun battalion, a division combat engineer battalion, a combat engineer company of the 12th Combat Engineer Battalion, and was supported by two mortar and artillery regiments. As a result superiority over the adversary was achieved on that axis as follows: 2.3-fold in battalion artillery, 18-fold in regimental and division artillery, and 2.6-fold in large-caliber guns. In addition, the division reserve -- the 1240th Rifle Regiment (minus a battalion) and a ski battalion -- was designated for action in the sector of the 1238th Rifle Regiment.<sup>2</sup>

A powerful initial attack with the element of surprise was extremely important to achieve a successful breakthrough of the enemy's defense. As experience indicated, offensive surprise was to be achieved by carefully concealing and camouflaging the troops and by disseminating false information, while the force of the offensive drive depended in large measure on an expedient structuring of the order of battle.

In order to ensure the element of offensive surprise, division headquarters were particularly thorough in scheduling the movement of units into the assembly areas and the relieving of troops. In the 327th, 256th and 372nd divisions all troop redeployments were conducted only during hours of darkness. Observance of camouflage and concealment measures was rigorously monitored. Communications traffic was absolutely prohibited during redeployment. In order to deceive the adversary, during the period of artillery preparation all combined units of the 2nd Assault Army conducted phony switching of fire with simultaneous conspicuous activities by limited infantry forces. All these measures unquestionably played a positive role.

In the majority of rifle divisions the order of battle was structured in a single echelon, in conformity with the People's Commissariat of Defense order of 8 October 1942. Typical in this respect is the example of the 136th Rifle Division, with all three rifle regiments positioned in the attack echelon, with two battalions in reserve (one each from the 269th and 342nd Rifle regiments). The division's antitank artillery reserve consisted of the 259th Tank-Destroyer Battalion. The rifle regiments and battalions also formed up into a single echelon. Two companies were assigned to reserve in each regiment, and one platoon in each rifle battalion. In the rifle regiments antitank artillery

reserves consisted of from 2 to 4 guns, a platoon of antitank rifles, and a combat engineer section.<sup>3</sup> As experience indicated, a single-echelon order of battle would enable the division to launch a powerful initial drive, employing a maximum number of weapons.

Terrain conditions made it necessary in most cases to break through the enemy's defense with frontal assaults. This was the case with the divisions of the 67th Army, which broke through the defense upon crossing the Neva River. The 327th Rifle Division of the 2nd Assault Army also softened up the enemy defense, launching a frontal assault and on the very first day capturing a strong center of enemy resistance in Kruglaya Wood. At the same time experience had shown that frontal assaults usually resulted in heavy casualties. Therefore wherever possible commanders of combined units and units sought, regardless of difficult terrain and lack of roads, to swing around the enemy and attack him in the flank and rear.

The actions of one of the battalions of the 372nd Rifle Division can serve as an instructive example of a successful swing around an enemy strongpoint in conditions of difficult swampy forested terrain. In order to build up efforts, the division commander committed his reserves, assigning them the mission of swinging around from the southeast a strongly fortified enemy strongpoint at Worker Settlement No 8. The battalion, under the command of Capt N. K. Smirnov, surged forward. The subunit successfully accomplished its assigned mission that same day, as a result of which favorable conditions were created for completing breakthrough of the enemy's main line of resistance across the division's entire zone and for routing the enemy at Worker Settlement No 8. Thus the division commander's intelligent decision and the bold actions and initiative on the part of the battalion predetermined success in capturing a powerful enemy strongpoint on his main line of resistance.

Employment of assault detachments, teams and other composite elements was typical of combat tactics during penetration and deep in the enemy's tactical zone of defense. Assault detachments, which were most typical for the combined units of the 2nd Assault Army, were formed in rifle regiments (usually two per regiment). They contained 100-150 men and consisted of several self-contained teams unified under common command and control: engineer and chemical reconnaissance, obstacle clearing, and assault. The last-named of these teams in the 372nd Rifle Division included a combat engineer platoon, a submachinegunner squad, a rifle platoon, an antitank rifle section, a medium machinegun section, antitank-gun crews, and artillery observers. The assault detachment led by company commander Capt Kh. Kh. Khakov performed skillfully during the offensive. The detachment's actions were distinguished by a high degree of teamwork, determination, swiftness of maneuver, and effective utilization of available men and weapons.<sup>4</sup>

Assault detachments were not formed in the combined units of the 67th Army. Pursuant to decisions by the commanders of the rifle divisions and regiments, however, assault teams were organized and trained in advance, one team per company. They usually contained 1 or 2 rifle squads, 1 or 2 medium machineguns, 2 antitank rifles, 1 or 2 45 mm guns, a platoon of 50 mm mortars, and a combat engineer section with a supply of explosives. The assault teams were



employed to capture and subsequently destroy enemy permanent-type weapon emplacements. Combat experience had shown that in order for such teams to be successful, their actions should be preceded by thorough reconnaissance of the assault objectives. As is noted in a report by 67th Army Headquarters, assault teams were employed most effectively in the 268th and 136th Rifle divisions.<sup>5</sup>

Other composite units were also formed in the divisions and units to perform particular tactical missions and to increase the rate of advance: ski detachments, teams to capture and seal off strongpoints, special subunits to protect boundaries between units and flanks, etc. These bodies could rapidly execute fairly deep turning movements and assist in accomplishing combat missions.

A detachment consisting of a rifle battalion and a reconnaissance company, for example, was formed in the 372nd Rifle Division on 17 January. It was led by the division's chief of operations, Maj P. V. Mel'nikov. The detachment was assigned the mission of bypassing a fortified enemy strongpoint and severing the road linking worker settlements No 1 and 5, thus cutting off the enemy forces' last avenue of withdrawal southward. Utilizing peat-harvesting operation drainage ditches, our men penetrated enemy lines undetected and hit the enemy in a determined, surprise attack. The assigned mission was successfully accomplished. On 18 January the troops of the Volkhov and Leningrad fronts linked up, and a document was drawn up stating that breakthrough of the blockade had been completed.<sup>8</sup>

Thus extensive employment of assault detachments and other composite units in an offensive on swampy forested terrain had proven effective. Their tactics were based on maneuver and surprise attacks into the enemy's flank and rear. At the same time experience had shown that, because of inadequate striking power and firepower, the capabilities of composite units to capture and hold powerful enemy strongpoints were limited.

Employment of tanks caused particular difficulties during offensive exploitation. The precariously frozen swampy ground made vehicle operation off roads extremely difficult. Therefore tanks operated for the most part in small groups (2-3, sometimes as many as 6-8), working together with infantry on tank-negotiable ground. As experience indicated, in order to prevent unwarranted losses of tanks it was important to provide them with adequate means of engineer reconnaissance and mine clearance, as well as reliably to suppress hostile artillery, which was not always achieved in the course of the offensive. As practical experience indicates, T-60 light tanks performed most effectively in conditions of swampy forested terrain; these tanks were customarily employed to engage separate groups of enemy infantry.<sup>9</sup>

Analysis of combat operations suggests that delivery of effective fire on the adversary was particularly important among the factors which ensured a successful attack against a strongly fortified enemy defense. In contrast to the engagements of the first period of the war, when not more than 5-7 percent of guns performed in the direct-fire role, approximately 20 percent of artillery (according to figures on the attack-echelon divisions) were designated for direct fire in Operation "Iskra," that is, 20-40 guns per kilometer of frontage. This was dictated by two factors: by certain difficulties in supplying

ammunition, and the need to demolish large numbers of defensive fortifications and various obstacles. Infantry support artillery groups were formed in a number of divisions (45th Guards, 268th, 136th, 86th, 372nd, 327th, 256th) to deliver fire on the enemy from indirect positions.<sup>10</sup>

Close support guns were extensively employed for direct support of infantry. Advancing in the combat formations of rifle subunits, they delivered fire on enemy personnel and weapons and demolished defensive works and obstacles.

The difficult terrain conditions predetermined the important role of small-arms fire against the enemy. As experience indicated, small arms and hand grenades were an indispensable means of accomplishing close-range fire missions, as well as in built-up areas, in forested areas, in assaulting enemy fortifications, in hand-to-hand fighting, and in situations where for any reason it was difficult to employ artillery and tanks.

One can obtain many useful things for today's combat practices from the experience of organizing coordination, command and control, support of combat operations, and troop combat training.

Joint commander's reconnaissance activities were conducted by commanders of rifle, tank, artillery, and combat engineer units and subunits when organizing teamwork and cooperation. Allocation of tasks and coordination of troop actions were done for the most part on the spot, in the field. Common time and point signals were established; coordination communications were organized; command, control and coordination signals were memorized.

We shall examine the activities of the division commander and his staff in organizing coordination with the example of the 372nd Rifle Division. The division headquarters staff had 12 days to plan for combat and organize coordination. Teamwork and cooperation was organized by the division commander on the terrain, during commander's reconnaissance, and consisted in coordinating the efforts of all combat arms pertaining to objective, time and place. The division commander, Col P. I. Radygin, conducted commander's reconnaissance on the morning of 2 January. He was accompanied by his chief of staff, chief of operations, chiefs of division arms and services, and unit commanders. The commander's reconnaissance was conducted from two points: initially from the observation post of the 375th Rifle Regiment of the 128th Rifle Division, which was defending in the forthcoming zone of advance of the 372nd Rifle Division, and subsequently from the observation post of the commander of the 128th Rifle Division. At the first location the division's chief of intelligence briefed the officers present on the nature of the enemy defense, focusing particular attention on the enemy strongpoint at Worker Settlement No 8. At the second location the officers in the reconnaissance group studied on a terrain model enemy strongpoints sited at depth. At this same location the chief of staff briefed the officers on the missions assigned to adjacent combined units, and the commander of artillery presented a briefing on artillery capabilities to neutralize the enemy defense. After this the division commander presented his plan.

On 3 January group drills on organizing teamwork and cooperation were held in the combined unit, followed by a two-stage command and staff exercise.<sup>11</sup> In addition, unit and subunit commanders extensively visited the forward defense positions of the 128th Rifle Division. This was done in order more thoroughly to study the adversary and the terrain, as well as to coordinate various items pertaining to teamwork and cooperation.

During a second commander's reconnaissance tour they detailed the battalion attack positions and zones of advance, specified bearings and sequence of advance to attack positions, specified location areas for division and regimental command and observation posts, and coordinated matters of engineer support.

On 8 January the division commander issued his operation order and coordination instructions.<sup>12</sup> Unit commanders were also at this time given orders and instructions on employment of combat arms and excerpted copies of the operational timetable. Division headquarters also provided subunits with coordination schedules for the groups from all combat arms assigned to assault detachments.

Approximately the same procedures were followed in the other divisions of the 67th Army and the 2nd Assault Army. As a result, close and continuous coordination among the units and subunits of the various combat arms was achieved in the course of the offensive.

Troop command and control was handled from command and observation posts. From the beginning of the offensive radio was the principal means of command and control at the division-regiment echelon. Regimental and battalion commanders were provided with radio sets. Wire communications were also employed, as well as communications by mobile means. Air controller officers were assigned to division command posts (and to observation posts at the beginning of combat operations), and artillery group commanders in the regiments.

During preparation for and in the course of the offensive, combined unit commanders and staffs devoted close attention to organizing combat support of the breakthrough, particularly reconnaissance of the enemy and engineer support of combat operations.

In the area of practical preparation of troops for combat actions in special conditions, combined unit and unit personnel practiced assault on a fortified enemy defense and advancing on swampy forested terrain. Scaling ladders and assault planks were prepared in all regiments of the 67th Army. Assault teams were issued hobnail boots. In addition, nail-studded planks were prepared, for negotiating ice-covered embankments. They were fastened to felt snow boots. From 15 to 20 men in each rifle company received training on crossing minefields and destroying mines.

\* \* \*

Thus offensive tactics became enriched in Operation "Iskra" with experience, valuable for the subsequent years of the war and to a certain degree for present-day conditions as well, in breaking through a strongly fortified enemy defense and employing the various combat arms in the difficult conditions of

swampy forested terrain. Retaining the greatest relevance for the present day is experience in massing men and weapons on the main axis of advance when attacking across difficult terrain. Of instructive value is the practical experience of forming assault and other detachments and teams, their training, and conduct of combat actions. Also valuable is the experience in establishing high artillery densities for direct-fire missions. Of considerable importance is experience in organizing delivery of fire for effect on the enemy, coordination of the various combat arms, and battlefield command and control of these combat arms.

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3024

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## WARTIME EXPERIENCE IN THE ORGANIZATION OF THE AIR FORCES

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[Article, published under the heading "The Great Patriotic War," by Candidate of Historical Sciences Col V. Chernetskiy: "Tendencies for Changes in the Correlation of Types and Commands of Aviation"; passages rendered in all capital letters printed in boldface in source]

[Text] Many factors influence the forming of the qualitative structure of air forces, that is, the specific ratio of types and commands within the air force's structure. Of paramount importance among these factors are level of development of production and the points of military doctrine on the character of a future war, on the modes and forms of conduct of warfare, and on the role, place and missions of air forces in such a war. Also taken into consideration are the specific features of potential theaters of military operations and views on organizational development and state of the armed forces, including air forces, of the potential adversary, the experience of the most recent wars, etc. The developing situation exerts considerable influence on the structure of air forces with the commencement of war.

In the prewar years Soviet art of warfare considered the offensive to be the principal type of combat operation. "IF THE ENEMY FORCES WAR UPON US...", stated the draft 1939 Red Army Field Service Regulations, "WE SHALL WAGE WAR AGGRESSIVELY.... RED ARMY COMBAT OPERATIONS WILL BE CONDUCTED TO DESTROY, WITH THE OBJECTIVE OF TOTALLY CRUSHING THE ADVERSARY."<sup>1</sup>

The Air Force was assigned the role of a powerful striking force and the principal long-range weapon. USSR People's Commissar of Defense K. Ye. Voroshilov stated in a speech on the 20th anniversary of the Red Army: "As we know, in future wars aviation units will be assigned an important, varied, and substantial independent role. They will be assigned missions not only involving strikes combined and coordinated with other combat arms; they will also be assigned independent strategic missions."<sup>2</sup> In connection with this, bombardment--especially heavy bombardment -- aviation began developing at an accelerated pace in the Air Force. The percentage share of heavy bombardment aviation increased over a period of 5 years (from 1934 to 1939) from 10.6 to 20.6 percent, that is, twofold.<sup>3</sup> During that same period the force of a simultaneous bomb salvo by Soviet aircraft tripled.<sup>4</sup>

Massive deliveries of heavy (TE-3) and long-range (DB-3) bombers made it possible to establish long-range bombardment aviation of the High Command (DBA GK), the percentage share of which in the Air Force was 13.5 percent at the beginning of the Great Patriotic War.<sup>5</sup> In frontal aviation (the air forces of the western frontier military districts) the percentage share of bombers was 31 percent as of 22 June 1941.<sup>6</sup> The experience of the initial stage of World War II indicated that strong ground-attack aviation was needed alongside bombers. We were unable fully to implement this conclusion, however, by the time fascist Germany attacked the Soviet Union. The new IL-2 special ground-attack aircraft, which had been designed shortly before the war, was just becoming operational. As of 22 June 1941 the percentage share of ground-attack aircraft in frontal aviation did not exceed 4.5 percent.<sup>7</sup> Thus strike aircraft comprised somewhat more than 35 percent of the total frontal aviation inventory.

Fighters constituted the core of the aircraft inventory (59 percent)<sup>8</sup>; the absolute and relative quantitative growth of these had been proceeding at a priority pace in the last prewar years. This was due to a number of reasons, particularly the views of Soviet art of warfare on the importance of and ways to achieve air superiority in a future war, views which were firmly established at that time.

The draft 1941 Field Service Regulations clearly stated that aviation was assigned the mission of securing air supremacy.<sup>9</sup> Fighters were considered the principal means of achieving air supremacy, which predetermined the priority growth of fighter aviation on the eve of the war.

The heightened attention toward the development of fighter and bomber aviation had to a certain degree a negative effect on the state of reconnaissance aviation. At the beginning of the Great Patriotic War slightly more than 5 percent of the frontal aviation inventory were reconnaissance aircraft.<sup>10</sup> And yet experience had shown that the importance of reconnaissance aviation should not be underestimated. As was noted in a summary report by the chief of Red Army air forces on Soviet air combat operations in the Soviet-Finnish War, "aerial reconnaissance continues to be one of the weak points of our military aviation."<sup>11</sup>

As regards fascist Germany's air forces, bombers were the largest component (57.8 percent). Fighters and reconnaissance aircraft comprised 31.2 and 11 percent respectively.<sup>12</sup> This numerical ratio among Luftwaffe commands was dictated by the endeavor on the part of the German-fascist command authorities to ensure effective assistance to its combat forces, particularly panzer, in the attack by delivering powerful bombing strikes on the enemy. The war, in its initial stages, made substantial adjustments in the structure both of Soviet and German air forces.

Without going into the well-known reasons for our temporary setbacks in the initial period of the war, we shall note that by 10 July 1941 the adversary had knocked out of action 50 percent of the aircraft of the frontier districts.<sup>13</sup> Long-range bombers also sustained heavy losses. The overall relative strengths in aircraft had become 1:2 in favor of the enemy.<sup>14</sup>



In connection with the heavy aircraft losses sustained by the frontier military districts at the beginning of the war, the German-fascist Luftwaffe succeeded in gaining air superiority and in substantially improving the relative strengths in aircraft in its own favor. Our difficulties were also aggravated by a sharp decrease in production and delivery of aircraft to the battle front, caused by the evacuation of aircraft plants into the heartland which had commenced by this time. This made it difficult to replace aircraft losses.

The main task in the prevailing conditions was to surpass the enemy's air combat power as quickly as possible. But this task appeared impossible without a substantial increase in aircraft production.

Thanks to heroic efforts by the party and all the people of the aircraft industry, by the first half of 1942 the prewar production level had not only been reached but surpassed. In the latter half of 1942 production of aircraft and aircraft engines began growing rapidly. In 1941 a total of 15,800 aircraft were built, and 25,400 in 1942, that is, 60 percent more.<sup>15</sup>

An increase in the aircraft inventory made it possible to introduce requisite adjustments in the internal structure of the air forces, in conformity with the established trend toward increase in strike aircraft. Alongside gradual replacement of the inventory of frontal and long-range bombers, ground-attack aviation was developing at an accelerated pace, and night light bomber aviation (NLBA) was being established.

General trends in change in the correlation among aviation types and commands in the course of the Great Patriotic War can easily be seen from the figures in the following table (as percentages).

Table\*

Aviation Type and Command	Status as of					
	22 June 1941	19 Nov 1942	1 July 1943	1 Jan 1944	1 Jan 1945	10 May 1945
Frontal Aviation	61.5	59.7	65.8	63.2	66.1	65.5
Long-Range Bombard- ment Aviation (Long-Range Avia- tion)	11.5	5.3	5.5	6.9	6.4	8.0
National Air Defense Forces						
Fighter Aviation	10.2	17.4	15.8	16.3	15.0	15.4
Naval Aviation	12.5	8.0	6.5	7.1	8.2	7.6
Civil Aviation	4.3	9.6	6.4	6.5	4.3	3.5
Frontal Aviation Bombers	31.0	34.7	22.7	31.4	23.0	22.0
Ground-attack aircraft	4.5	31.2	31.9	26.1	30.0	26.3
Fighter aircraft	59.0	30.8	41.8	42.5	41.7	46.0
Reconnaissance air- craft	5.5	3.3	3.6	No figures	5.3	5.7

(\* -- see bottom of next page for asterisk)

As is evident from the above table, by the end of the first period of the war the percentage share of ground-attack aircraft in the air forces of the fronts had increased to 31.2 percent, which essentially signified creation of a new aviation command -- ground-attack aviation.

By the end of the first period of the war the striking power of frontal bomber aviation had also increased substantially. This was achieved primarily due to the establishment of night light bomber aviation (NLBA). By this time its percentage share of the aircraft inventory of the air forces of the army in the field was approximately 28 percent. On the whole during the first period of the war the percentage share of strike aircraft (bombers and ground-attack aircraft) in the fronts increased to 66 percent, while the bomb salvo had doubled.<sup>16</sup>

At the same time measures were taken to achieve revival of the striking power of long-range bomber aviation. In March 1942 it was reorganized into long-range aviation (ADD) and subordinated to Hq SHC [Headquarters, Supreme High Command]. A number of combined units were transferred, by order of the People's Commissariat of Defense dated 16 March, to provide forces for it. By the summer of 1942 ADD contained 7 bombardment divisions and an air transport division, as well as a reserve air brigade.<sup>17</sup>

More extensive employment of fighters for strikes against various enemy ground targets also helped increase the striking power of Soviet air forces. On 18 June 1942 the USSR People's Commissar of Defense issued a special order entitled "On Employment of Fighter Aircraft on the Battlefield as Daylight Bombers." It stated: "Employment of fighters on the battlefield for daylight bombing significantly increases the striking power of our air forces and our bombing strikes."

Rebuilding of the fighter aircraft inventory was proceeding at an accelerating pace. In comparison with October 1941, when the total number of operational fighters was the least, by November 1942 the number of frontal-aviation fighters had almost doubled, and their percentage share had risen to almost 31 percent.

Reconnaissance aircraft which, together with other types of aircraft, had sustained heavy losses, had restored their numbers to some extent by the end of the first period of the war. On the whole, however, the percentage share of reconnaissance aircraft in frontal aviation had declined from 5.5 to 3.3 percent.

The most important factors determining subsequent development of the Soviet Air Force and improvement of its internal structure were rapid increase in the production capabilities of the aircraft industry and an increase in the role of air forces in defeating the enemy.

\* Table compiled from materials in the Central Archives of the Ministry of Defense, Fund 35, List 107559, File 5, sheets 116-233; File 6, sheets 4-82; File 16, sheets 276-319; List 10756, File 8, Vol 2, sheets 216-271; File 9, sheets 159-216; List 107562, File 13, sheets 161-258; List 74312, File 6, sheets 274-373; List 107567, File 36, sheets 3-68.

In 1943 the aircraft industry supplied the combat forces with approximately 35,000 airplanes, or 37.4 percent more than in 1942. Average monthly aircraft production figures rose from 2,100 in 1942 to 2,900 in 1943.<sup>18</sup>

Production of ground-attack aircraft, which comprised more than one third of all aircraft built, was increasing particularly rapidly. This was dictated by the fact that when the Soviet Army shifted to aggressive offensive operations, there was a sharp increase in need for ground-attack aircraft as the principal means of battlefield close air support of ground troops.

The availability of large numbers of ground-attack aircraft compensated to some extent for the shortage of bombers, the percentage share of which, in spite of a steady quantitative growth, did not exceed 23 percent as of 1 July 1943. And although by the end of the second period of the war this figure had risen to 31.4 percent, more than half of all bombers were in the NLBA, which comprised 17 percent of the aircraft inventory of frontal aviation. The small percentage share of daylight frontal aviation bombers was due to the complexity of setting up series production on these aircraft, the high cost of PYe-2 and TU-2 bombers, and the mass production of ground-attack aircraft and fighters.

As we know, the summer campaign of 1943 ended for our air forces with achieving strategic air superiority. This victory was first and foremost a result of achieved military and technical superiority over the enemy's air forces, including the quantitative and qualitative superiority of our fighter aviation, which played a principal role in successful accomplishment of this most important strategic mission. Immediately prior to the Battle of Kursk, fighters totaled approximately 3,700 aircraft, or 41.8 percent of the frontal aviation aircraft inventory.

By the summer of 1943 the number of reconnaissance aircraft had almost reached the prewar level. The percentage share of reconnaissance aircraft, however, remained small -- 3.6 percent.

Long-range bomber aviation also had grown quantitatively and qualitatively. In the spring of 1943 8 aviation corps and 2 independent air divisions were formed in place of the existing independent air divisions. By the end of the year ADD totaled more than 1,000 combat aircraft, or 6.9 percent of the entire Soviet aircraft inventory involved in combat operations.

Thus the Soviet Air Force entered the third and concluding period of the Great Patriotic War even stronger and more powerful. It contained 2.5 times as many aircraft as the enemy possessed.<sup>20</sup> Nevertheless the task of achieving the earliest possible final defeat of the enemy required a further buildup of combat power and improvement of the air-force organizational structure.

Increased deliveries and a decrease in aircraft losses promoted a further growth in the aircraft inventory, which reached a quantitative maximum by January 1945. In the remaining 4 months of the war the total number of aircraft remained virtually unchanged, while the numbers even fell off somewhat for certain types of aircraft (bombers and ground-attack aircraft). Therefore the correlation of aircraft numbers at that time is of the greatest interest.

Analysis indicates that as of the beginning of 1945 the percentage share of bombers and fighters had not appreciably changed in comparison with the status effective 1 July 1943. The bomber structure had changed, however: PYe-2 and TU-2 daylight bombers predominated. The percentage share of NLBA aircraft had declined to 7.2 percent of the frontal aviation inventory. The percentage share of ground-attack aircraft had declined by approximately 2 percent, which was fully compensated by the more extensive employment of fighters against ground targets. The percentage share of reconnaissance aircraft had risen by 1.7 percent in a year and a half. The percentage of ADD (effective December 1944 — 18th Air Army) in the total Soviet air inventory had increased insignificantly (by less than 1 percent). As of 1 January 1945 it contained 4 bomber corps and 3 independent divisions.<sup>21</sup>

Thus in the course of the war the most characteristic trends in changing the internal structure of frontal aviation were an increase from 35.5 to 53 percent in the percentage share of strike aircraft and a corresponding decrease in the percentage share of fighter aircraft (from 59.0 to 41.7 percent).

Precisely opposite trends were observed in the German-fascist air forces. Beginning with the latter half of 1943, when they lost strategic air superiority and were forced to shift to strategic defense, the percentage share of bombers began dropping off sharply, and by war's end had declined from 57.8 to 16.7 percent. On the other hand, the percentage share of fighters rose from 31.2 to 59 percent.<sup>22</sup>

The somewhat insufficient number of frontal aviation bombers for performing missions in the course of Soviet Army offensive operations was compensated for by extensive enlistment of long-range bombers for battlefield actions and by establishing NLBA. Nonorganic reconnaissance subunits and units of other air commands were enlisted to perform tactical and operational air reconnaissance missions. The latter accounted for more than 81 percent of reconnaissance aircraft-missions.<sup>23</sup>

Alongside frontal and long-range bombardment aviation, National Air Defense Forces fighters, naval aviation and civil aviation took active part in combat operations, making a significant contribution to the common cause of defeating the enemy.

Over the course of the war the total number of air defense fighters more than doubled, while their percentage share rose from 10.2 to 15.4 percent. The percentage share of ADD and naval aviation declined from 11.5 to 8 percent and from 12.5 to 7.6 percent respectively.<sup>24</sup>

Civil aviation was initially represented by 6 special air groups and 3 special air detachments, of which independent air regiments and air divisions were formed. The percentage share of these aircraft comprised 4.3 percent at the beginning of the war and 3.5 percent at war's end.

Stable retaining of the percentage share of the aviation types and commands during the concluding period of the Great Patriotic War constitutes evidence of the fact that development of the Soviet Air Force was proceeding harmoniously, taking diversified factors into account, particularly the nation's economic



capabilities and the nature of the missions being performed by air forces in the armed conflict.

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3024

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## PARTY-POLITICAL WORK, 'THE LENIN MODEL' IN THE UKRAINIAN FRONTS

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[Article, published under the heading "The Great Patriotic War," by Professor and Doctor of Historical Sciences Maj Gen A. Verbilo: "The Ideas of V. I. Lenin, the Image of the Leader, Inspired Deeds and Led to Victory (Based on the Experience of Dissemination of Lenin's Ideological and Theoretical Legacy by Political Agencies and Party Organizations of the Ukrainian Fronts During the Great Patriotic War)"]

[Text] The Marxist-Leninist ideological-theoretical legacy was the foundation of CPSU ideological work during the Great Patriotic War. More than 500 editions of the works of Marx, Engels, and Lenin were published in the period 1941-1945, in a total of approximately 17 million copies.<sup>1</sup> The writings of V. I. Lenin on military issues, his articles and speeches on defense of the Soviet homeland were printed in great numbers.

The 34th volume of the Lenin Collection was published in 1942, containing many letters, telegrams, notes, and resolutions written by our leader in 1917-1922 and connected with his activities pertaining to organizing defense of the young Soviet Republic, and published for the first time. Another collected volume was published in 1943 -- "V. I. Lenin. Voyennaya perepiska 1917-1920 gg" [V. I. Lenin. Military Correspondence, 1917-1920], the materials in which reveal the enormous organizational work done by the party, led by V. I. Lenin, on the battle front and on the home front during the period of military intervention and civil war.

"The materials in this volume pertaining to 1917-1922," we read in the foreword to XXXIV Leninskiy Sbornik, "in content have much in common with the tasks of defending our socialist homeland during the Great Patriotic War of the Soviet people against the German-fascist invaders. Study of these documents will arm our cadres with Bolshevik experience and the skill of organizing victory over the enemy."<sup>2</sup>

Lenin's ideas on defense of the socialist homeland were utilized in the writings of prominent leaders of our party and were widely disseminated in the reports and orders of Supreme Commander I. V. Stalin. His Order No 95 of 23 February 1943, for example, stated: "The entire Soviet people is pleased over the Red Army's victories. But the fighting men, commanders and political workers of

the Red Army should firmly remember the behests of our teacher Lenin: 'The first thing is not to get carried away with the victory and engage in preening one's feathers; the second thing is to consolidate the victory, and the third thing is to finish the enemy off'."3

An important role in disseminating the Lenin military-theory legacy was played by M. I. Kalinin's "Lenin on Defense of the Socialist Homeland," which was published in 1943. "For all of us study of Lenin's career," he wrote, "is a vital necessity, and this applies to the army, to its commanders and political workers, in order better to understand contemporary events, in order continuously to improve in one's knowledge of military affairs and thus to fight the German invaders with greater success."4

In 1942 the Marx-Engels-Lenin Institute published a book entitled "Lenin Vladimir Il'ich. Kratkiy ocherk zhizni i deyatel'nosti" [Vladimir Il'ich Lenin. Concise Sketch of His Life and Career]. It was a constant companion of many Soviet fighting men during the difficult war years. A copy of this book, which soldier N. G. Yakovenko carried from the Volga to Berlin, is presently on exhibit at the Central Armed Forces Museum.<sup>5</sup>

The immortal ideas of Lenin inspired Soviet fighting men to perform deeds for the glory of the socialist homeland, infused them with inspiration and energy, and taught them to win and consolidate victory.

All the party-political work by political agencies and party organizations of the Ukrainian Front was permeated with a spirit of Lenin's instructions, thoughts, and theses. Commanders and political workers of all echelons turned constantly in their practical activities to Lenin's writings as an inexhaustible source of theoretical wisdom and party experience.

Front and army newspapers published numerous materials about V. I. Lenin. In 1944-45 the newspapers of the Ukrainian fronts published the following articles: "The Victorious Banner of the Great Lenin Waves Over Us"; "Under the Banner of V. I. Lenin -- Forward to Victory"; "Remember, Love, and Study Lenin -- Our Teacher, Our Leader"; "I Saw and Heard Lenin"; "Leader on the Podium"; "The Cause of Lenin Is Invincible"; "The Ideas of Lenin Are Inspiring the Soviet People to Final Victory Over the Enemy"; "Lenin Is With Us"; "V. I. Lenin -- Founder and Leader of the Great Party of Bolsheviks"; "Vladimir Il'ich Lenin"; "Order of Lenin"; "Oath at the Mausoleum"; "Conversation About Il'ich"; "Leninists"; plus others.<sup>7</sup>

The following topics were studied at seminars for political workers, company party and Komsomol organizers, and agitators, held in March-April 1945 in the units of the Ukrainian fronts: "V. I. Lenin -- Great Patriot of Our Homeland"; "V. I. Lenin -- Organizer of the Red Army"; "V. I. Lenin -- Founder and Leader of the Bolshevik Party"; and "V. I. Lenin -- Organizer and Indoctrinator of Komsomol."<sup>8</sup>

Lectures and reports were presented to personnel of the Ukrainian fronts at the beginning of 1945 on the following topics: "Formulation by V. I. Lenin of the Organizational Principles of the ACP(b) [All-Union Communist Party (of Bolsheviks)];

"The Military Behests of V. I. Lenin"; "V. I. Lenin -- Leader and Organizer of the Bolshevik Party"; "V. I. Lenin -- Great Patriot of Our Homeland"; "V. I. Lenin on Defense of the Socialist Homeland"; "V. I. Lenin -- Organizer of the Red Army"; "The Party of Lenin -- Inspirational Force and Organizer of the Popular Struggle Against the Fascist Invaders"; "The Party of Lenin -- Inspirational Force and Organizer of the Great Victories of the Red Army"; plus others.<sup>9</sup>

The political agencies and party organizations of the Ukrainian fronts devoted much attention to dissemination of Lenin's ideas on a patriotic war being "a war for the socialist homeland, for socialism as the homeland, for the Soviet Republic as a /detachment/ [in italics] of the world army of socialism."<sup>10</sup>

In January 1945 two-day seminars for subunit agitators were held in the units and combined units of the Third Ukrainian Front. The following topics were studied: "What the Great October Socialist Revolution Gave to the Peoples of the USSR"; "The Capitalist Character of the Economy of the Bourgeois Nations"; "The USSR -- Country of a Progressive Socialist Culture"; "The Great Exploit of the Soviet People in the Patriotic War"; "Soviet Patriotism -- Source of the Exploits of Soviet Citizens on the Battle Front and on the Home Front"; "The Soviet System -- Best Form of Mobilization of the Energies of the People to Repulse the Enemy."<sup>11</sup>

At the beginning of spring 1945 a theoretical conference was held in the 60th Army, dealing with Lenin's writings which discussed the role of the home front for achieving victory over the enemy.<sup>12</sup>

Open Komsomol meetings with the agenda "Our Soviet Homeland" were extensively held in the 18th Army. The advantages of the socialist system were presented at these meetings. It was pointed out in the plan for conduct of these meetings that their purpose was to tell Komsomol members and non-Komsomol young people how strong and powerful are our state and its Red Army, which was fighting against the German-fascist invaders, and in mobilizing all their energies toward carrying out the historic missions assigned by the Supreme Commander in Order No 5. The following sequence of activities at these meetings was specified: report as specified by the agenda, viewing of films about the Soviet homeland, addresses, and adoption of a resolution.

Training of party organizers, Komsomol organizers, and agitators on matters of dissemination of the Lenin ideological-theoretical legacy was well organized in this army. At a two-day seminar for battalion Komsomol organizers held under the auspices of combined unit political sections, personnel would study materials on the role of the home front in achieving victory over the enemy and on indoctrinating young servicemen in a spirit of defense of the socialist homeland and Soviet patriotism.<sup>14</sup>

Lenin theses on the class nature of hatred toward the enemy were constantly being explained in the combined units and units of the Ukrainian fronts. Newspapers published numerous articles on these subjects. GERoy RODINY, for example, the 46th Army's newspaper, published between 1 and 20 February 1944 four articles which helped instill burning hatred toward the fascist invaders.<sup>15</sup>

The organic unity of Soviet patriotism and proletarian internationalism was constantly being explained in the press and in mass agitation activities. Newspapers unfailingly stressed that Lenin's ideas on defense of the socialist homeland presuppose mutual fraternal support by the working people of all countries, are permeated with the spirit of proletarian internationalism and have nothing in common with nationalism and infringement of the rights of other peoples and nations. "While dearly loving Russia," stated the 19 April 1945 issue of ZACHEST' RODINY, newspaper of the First Ukrainian Front, "and holding high regard for its people, their culture and traditions, at the same time Lenin was a resolute and implacable enemy of any and all nationalism, of any ideology of ethnic inequality. Lenin did not attempt to exalt his own country by belittling other peoples. He fought for great Russia as a country of freedom and progress."

Military personnel read Lenin's writings in breaks between fighting. They found in these writings strength and confidence in victory. Rifle battalion Komsomol organizer A. Ivlev wrote to his fellow Siberians on 20 March 1945: "In addition I would like to request, if I may, that you send a small library of imaginative literature, and especially V. I. Lenin's speech at the Third Komsomol Congress."<sup>17</sup>

Activities propagandizing the Lenin ideological-theoretical legacy were conducted with particular intensity on Lenin days. On 19 January 1944 the Main Political Directorate of the Red Army issued a directive entitled "On Political Work in Connection With the 20th Anniversary of the Death of V. I. Lenin," and on 19 April 1945 -- "On Performance of Work in Connection With the 75th Anniversary of the Birth of V. I. Lenin," in which political agencies and party organizations were instructed to explain extensively to personnel the historic role of V. I. Lenin and the significance of his activities for the peoples of the USSR and the working people of the entire world.<sup>18</sup>

On Lenin anniversaries the newspapers of the Ukrainian fronts carried articles on V. I. Lenin, while the 21 January and 22 April 1945 issues of these newspapers were dedicated in their entirety to our leader's life and career. In the units and subunits, when the situation permitted, formal meetings, lectures, reports, discussions, and other activities were held with all personnel. The films "Lenin in October," "Lenin in 1918," "Man With a Gun," "We Shall Be Like Lenin," and others were shown at Red Army houses and clubs.<sup>19</sup>

In the 99th Rifle Division of the 46th Army, the schedule for conduct of Lenin days in April 1945 specified group readings of the leader's writings and articles dedicated to him. In addition, official meetings and lectures were scheduled for officer personnel and party activists on the following topics: "V. I. Lenin -- Leader and Organizer of the ACP(b)"; "V. I. Lenin -- Founder of the World's First Socialist Worker and Peasant State"; "V. I. Lenin -- Great Patriot of Our Homeland"; plus printing of news bulletin leaflets and showing of the film "The Vyborg Area."<sup>20</sup>

Photomontages and literature exhibits were prepared for Lenin days. Agitators held numerous talks. Often immediately following reports and talks, the men would express their ardent endeavor faithfully to carry out the behests of V. I. Lenin. The flow of applications for party membership increased.



A significant contribution toward explaining Lenin's ideas on defense of the socialist homeland was made by the large army of grass-roots agitators. Special seminars on Lenin topics were held for them.

The ideas and behests of Lenin helped fight and inspired the men to perform heroic deeds. STALINSKOYE ZNAMYA, newspaper of the Fourth Ukrainian Front, told how people living in Hitlerite-occupied areas of the Ukraine lovingly preserved portraits of V. I. Lenin, risking their very lives. "Lenin also helps me fight," a soldier by the name of Aristarkhov wrote in the newspaper. "And when I see a portrait of Il'ich in a village or town which we have just won back, I get the feeling that Lenin is marching ahead of his soldiers. We are still fighting, and he has already arrived. He looks right into your heart with his kind, alert eyes. Timidity, cowardice, or any other faintness of spirit disappear at a mere glance by Il'ich."<sup>22</sup>

Newspapers of the First Ukrainian Front -- ZA CHEST' RODINY, of the Second Ukrainian Front -- SUVOROVSKIY NATISK, and of the Third Ukrainian Front -- SOVETSKIY VOIN, which have been preserved at the Library Imeni V. I. Lenin and the Central Archives of the USSR Ministry of Defense, ran feature columns entitled "Lenin's Behests" and "Behests of the Great Lenin." In one such article Sgt G. Onishchenko, who had been awarded the Order of Lenin, wrote: "Pinned to my chest is the nation's highest award -- the Order of Lenin. And the behests of our beloved leader, Vladimir Il'ich, are faithfully preserved in my heart."<sup>23</sup>

Hero of the Soviet Union I. S. Kholodov, squad leader in the 574th Rifle Regiment of the 121st Rifle Division of the 60th Army, devoted his article in the newspaper ZA CHEST' RODINY to the great, inspiring force of Lenin's ideas on defense of the socialist homeland. He wrote: "Wherever I have been, in whatever fierce battle I have fought, the familiar, dear image of Vladimir Il'ich has always been with me. I have defeated the enemy repeatedly with him. The picture of the great Lenin has given me strength and energy in combat against the German invaders."<sup>24</sup>

An article by Sgt A. Gaydukov, who fought with the 18th Army, discussed the feeling of a united family of peoples of the USSR which Vladimir Il'ich bequeathed to us, and cited an example of the fighting brotherhood of Soviet servicemen: he related how Kazakh Disyukov had saved in battle the life of Uzbek Madiminov. And together they helped wounded Russian Private Kozlov.

We should take particular note of the fact that there were men fighting in the Ukrainian fronts who had experienced the good fortune of seeing and hearing our leader. Their reminiscences were also carried in the newspapers.

Pvt N. Nikulin, member of the ACP(b) since 1918, participant in the Third Kom-somol Congress, who had fought in the Fourth Ukrainian Front, wrote in the newspaper STALINSKOYE ZNAMYA: "I saw Lenin more than 20 years ago. But his image has not yet faded from my memory. He is always with me, and when I march into battle the majestic image of Lenin appears before my eyes."<sup>25</sup>

Former Kremlin cadet N. Khaldin (Fourth Ukrainian Front), writing in that same newspaper, shared his impressions on meetings with V. I. Lenin: "Neither Lenin's face nor his hand gesture will ever fade from my memory. I shall never forget Lenin's affectionate greeting: 'Hello, comrade cadets!' It has been 20 years since Lenin's death, but I still see him alive, among the people, amidst their doings, in military labor, in the labor of millions of people working for the war effort, for the homeland, for victory over the hated foe."<sup>26</sup>

Materials about the Order of Lenin, Lenin portraits, and monuments to our leader were of great indoctrinational significance and were highly inspirational. First Sgt A. Grigor'yev, who had been awarded the Order of Lenin, stated in the 18th Army's newspaper: "The general, in pinning the Order of Lenin to my chest, said: 'Now you are a Leninist by virtue of your party membership, by spirit, and by military decoration.' And wherever I go, feeling the presence of the Order of Lenin on my chest, I shall fight like a Leninist -- boldly, with daring, and with devastating effect. That is my oath as a Leninist fighting man!"<sup>27</sup>

Red Armyman Aleksey Bozhok, on withdrawing from Sevastopol swore an oath before our leader's portrait: "We shall return. I swear to you, Il'ich, we shall return." This sailor carried Lenin's portrait throughout all the fighting and was one of the first to fight his way back into Sevastopol among the ranks of its liberators.<sup>28</sup>

During the fighting to liberate the Soviet Ukraine, SOVETSKIY VOIN, newspaper of the Third Ukrainian Front, told of a heroic exploit by the squad under the command of Sgt Mikhail Dybov, which had fought its way into a village. Heavy hostile fire forced the men to hit the ground alongside the surviving pedestal of a monument to our beloved leader. Sergeant Dybov rose up and shouted: "Comrades! Attack! Lenin is with us!" The squad attacked. Inspired by his appeal, the men overran the enemy's emplacements, smashed the enemy, and enabled the rest of the subunits to advance.<sup>29</sup>

The Komsomol member fighting men of the Ukrainian fronts always remembered that Komsomol bears the name of the great Lenin. When presenting membership cards to newly accepted Komsomol members, the Komsomol workers would urge them to fight the enemy in a Leninist manner. The young servicemen would swear an oath faithfully to carry out Lenin's behests.

"Receiving this card, on the cover of which is a silhouette of V. I. Lenin," stated Gds Pvt A. P. Verevkin, "I swear to justify in battle with honor and glory the lofty title of member of the Lenin Komsomol. In past battles I have killed 14 enemy soldiers, and I pledge to double or triple this figure in future battles."<sup>30</sup>

Considerable work was done among the troops of the Ukrainian fronts to learn the new Soviet National Anthem. Its text was published in all front, army, and division newspapers. Reading and singing it, the men felt a new welling up of love for Lenin and the Communist Party he had established. "When I sing the words in the Soviet Anthem 'And the great Lenin illumined our path,' I cannot help but think: How profoundly true this is!" wrote Sr Lt P. Sinyagovskiy, who was fighting with the 18th Army.<sup>31</sup>

In the fall of 1941 the Soviet guard was born in fierce fighting. Combat banners bearing a likeness of our leader were given to the finest of the finest. The guardsmen carried them forward at difficult moments. As MSU V. I. Chuykov recalled, it seemed that Lenin was marching with us into the attack and urging us to perform valiant deeds.

The men of the Samara-Ulyanovsk Iron Division, the 24th Rifle Division, always bore in mind the behests of V. I. Lenin. A private in this division by the name of V. Mayborskiy, who repeated the deed of A. Matrosov, said to his comrades: "Don't worry about me, I'll make it. Keep moving westward. Let no obstacles stop you on the road to victory."<sup>33</sup> V. Mayborskiy survived and was awarded the title Hero of the Soviet Union. "...It was impossible to serve in the Iron Division," he writes, "and not display genuine heroism, for the division was established on Lenin's instructions in 1918. It liberated Simbirsk, Vladimir Il'ich's home town, from the White Guardists...."<sup>34</sup>

During the time when the Ukrainian fronts were carrying out their liberation mission in Europe, considerable indoctrination work was being performed at memorable Lenin sites.

Headquarters of the 17th Guards Corps was located outside Poronino, where a party conference had been held in the fall of 1913 under the chairmanship of V. I. Lenin. "L. I. Brezhnev," recalls Hero of the Soviet Union Lt Gen N. S. Demin, "recommended that the officers and men be told about these sites, connected with Vladimir Il'ich's stay in Poronino and Nowy Targ. He drew our attention to how solicitously the Poles had preserved Lenin relics.

"We carried out the advice and recommendations of the military council. Talks with personnel on V. I. Lenin's stay in Poland had a beneficial effect on the attitude and combat readiness of the officers and men."<sup>36</sup>

Preparation for and execution of the final operation of the Great Patriotic War -- the Berlin Operation -- coincided with the 75th anniversary of V. I. Lenin's birth. Newspapers carried articles on V. I. Lenin, founder of the Communist Party and the Soviet State and organizer of the Red Army. Propagandists and lecturers used these articles in their mass agitation work among the men.

Red banners carrying the following words appeared in almost all guards sub-units which fought their way into the capital of the fascist Reich: "Lenin Is on the Guards Banner!"; "Lenin Is In the Guardsmen's Hearts!" News bulletin leaflets bore the headline "The First Salvo on Berlin Thunders on Eve of Lenin Anniversary!" The fighting banners of the units and combined units which stormed Berlin bore a likeness of V. I. Lenin.

In the name of Vladimir Il'ich Lenin the Soviet people achieved a world-historic victory over fascist Germany. At 2250 hours on 30 April 1945, the Victory Banner was hoisted over the Reichstag. This was not only the banner of our military victory but the immortal banner of October, the great banner of Lenin....

The victory of the Soviet people over fascist Germany and militarist Japan constituted vivid evidence of the great, vital strength of Leninism and a triumph of the Leninist teaching on defense of the socialist homeland.

#### FOOTNOTES

1. See "Istoriya Kommunisticheskoy partii Sovetskogo Soyuz" [History of the Communist Party of the Soviet Union], Vol 5, Book 1, Moscow, Politizdat, 1970, page 409.
2. "Leninskiy sbornik XXXIV" [Lenin Collection Volume XXXIV], Moscow, Gospolitizdat, 1942, page 4.
3. I. V. Stalin, "O Velikoy Otechestvennoy voyne Sovetskogo Soyuz" [On the Great Patriotic War of the Soviet Union], Moscow, Politizdat, 1947, pp 94-95.
4. M. I. Kalinin, "Izbrannyye proizvedeniya" [Selected Writings], Moscow, Politizdat, 1975, page 354.
5. See A. A. Yepishev, "Leninskaya partiya kommunistov -- organizator pobedy sovetskogo naroda v Velikoy Otechestvennoy voyne" [The Leninist Party of Communists -- Organizer of the Victory of the Soviet People in the Great Patriotic War], Moscow, Molodaya Gvardiya, 1975, page 19.
6. Footnote omitted.
7. See SOVETSKIY VOIN, 19 January 1944; STALINSKOYE ZNAMYA, 19, 21, 22 January 1944; ZA CHEST' RODINY, 12, 22 April 1945; SOVETSKIY VOIN, 17, 22 April 1945; STALINSKOYE ZNAMYA, 21, 22 April 1945.
8. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], Fund 236, List 2675, File 165, Sheet 174.
9. Ibid., Fund 240, List 2772, File 121, sheets 446, 467, 472.
10. V. I. Lenin, "Poln. Sobr. Soch." [Complete Works], Vol 36, page 82.
11. See V. A. Muradyan, "Bratstvo, skreplennoye krov'yu" [Brotherhood, Strengthened by Blood], Voenizdat, 1969, page 278.
12. TsAMO, Fund 236, List 52060, File 13, Sheet 3.
13. Ibid., Fund 371, List 6386, File 134, Sheet 108.
14. Ibid., List 6387, File 8, Sheet 4.
15. See GEROY RODINY, 5, 7, 14, 19 February 1944 (newspaper of the 46th Army).
16. Footnote omitted.



17. "Lenin, Nauka, Molodezh'" [Lenin, Science, and Youth], Moscow, Nauka, 1980, page 483.
18. TsAMO, Fund 32, List 920265, File 8, sheets 1-2, 203-204.
19. Ibid., Fund 240, List 2772, File 73, Sheet 192.
20. Ibid., File 121, Sheet 472.
21. Footnote omitted.
22. STALINSKOYE ZNAMYA, 21 January 1944.
23. ZA CHEST' RODINY, 21 January 1944.
24. Ibid.
25. STALINSKOYE ZNAMYA, 21 January 1944.
26. Ibid.
27. ZNAMYA RODINY, 19 January 1944 (newspaper of the 18th Army).
28. DESNYANS'KA PRAVDA, 21 January 1945 (organ of the Chernigov Oblast CPSU Committee).
29. SOVETSKIY VOIN, 11 April 1944.
30. TsAMO, Fund 240, List 2772, File 121, Sheet 473.
31. ZNAMYA RODINY, 21 January 1944.
32. Footnote omitted.
33. V ATAKU, 1 October 1944 (newspaper of the 2nd Guards Army).
34. "V boyakh za Karpaty" [Fighting for the Carpathians], Uzhgorod, Karpaty, 1975, page 170.
35. Footnote omitted.
36. N. S. Demin, "Kommunisty, vpered!" [Communists, Forward!], Kiev, Politizdat Ukrainy, 1979, page 206.

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3024

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## U.S. SUBMARINE COMBAT IN PACIFIC IN WORLD WAR II DISCUSSED

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[Article, published under the heading "In Foreign Armies," by Candidate of Historical Sciences Capt 1st Rank A. Usikov: "Group Actions by U.S. Submarines in the Pacific During World War II"]

[Text] During World War II submarines achieved considerable success in combat on sea lines of communication. Almost all the world's navies devoted considerable attention to the technical equipping of the undersea force and improving the tactics of its combat employment.

In the course of the war U.S. submarines operating in the Pacific theater more than 1,300 Japanese warships and merchant vessels, representing a total tonnage of 5.3 million tons, and comprising 54.6 percent of total Japanese fleet losses.<sup>1</sup> Group submarine actions experienced development alongside actions by individual submarines. U.S. undersea forces command authorities undertook first attempts to employ submarines in groups in the fall of 1943. These attempts were based on the experience of combat actions by groups of German U-boats in the Atlantic, called "wolfpacks."<sup>2</sup> After the U.S. chief of naval operations issued a directive to devise "wolfpack" tactics, training of commanders and personnel of submarine torpedo fire control stations commenced at Pearl Harbor. At first it was conducted in classrooms, employing communications gear. Later training was moved to sea. U.S. convoys running from San Francisco to Pearl Harbor were used in practicing coordinated group submarine attacks. Convoys would be alerted that they would be "attacked" by submarines within the last 24 hours preceding their arrival at the destination.

The Americans attempted to extract from the experience of the German Navy all the most valuable items, taking into consideration certain specific features. Allied convoys in the Atlantic as a rule contained 40-70 ships, with a fairly large number of escort warships, and the German "wolfpacks" were a response to the forming of large convoys with heavy escort. Submarine groups consisted of 10 or more submarines and would be deployed into screens to cover the possible paths of convoy movement. Japanese convoys in the Pacific, however, usually contained 5-7 transports and cargo ships and 1-2 escorts. And although cargo tonnage losses forced Japan in 1943 to strengthen its convoy system, Japanese escort ships did not carry adequately effective sonar and radar gear to present a genuine threat to American submarines.

Taking into consideration German U-boat experience, the Americans decided to devise their own method of employing submarines in wolfpacks.<sup>3</sup> It was decided to form a wolfpack of three submarines. Overall direction of their actions would be handled by the group commander, who would be on board one of the submarines.

The submarines would proceed in formation abeam along probable convoy routes, positioned from one another at a distance somewhat less than double effective radar range. One of them, having made contact with the enemy, would lead the others, communicating data on the convoy: its coordinates, course, and speed. The submarine which was the first to attack would withdraw laterally, enabling the others to attack and, continuing surveillance, would report situation changes to them. Its mission included destroying convoy stragglers or damaged vessels. The two other submarines, having received data on the convoy's movement, were to make use of superior speed surfaced, take up advantageous attack positions to port and starboard forward of the target, and commence attacking together. Following the attack, the group commander would designate a rendezvous point for the submarines to exchange information and devise a plan of subsequent actions.

By the end of September 1943 practical rehearsing of group actions by the first submarine was completed. The submarines "Grayback" and "Shad" steamed out of Pearl Harbor on 26 September; they were joined off Midway by the submarine ("Siro"). These three submarines formed the first "wolfpack" in the history of U.S. undersea forces.<sup>4</sup> This group conducted combat operations in the East China Sea and off the Chinese coast. On 10 November 1943 all three boats returned to base on Midway. According to the figures of the joint committee to determine losses, the group was credited with three vessels sunk, a total tonnage of 23,500 tons; two were sunk by the "Grayback" and one was sent down jointly by the "Grayback" and "Shad."

A second group, consisting of the "Snook," "Harder," and "Pargo," operated from 30 October to 30 November in the area of the Marianas. Another group of submarines, consisting of the "Tullibee," "Haddock," and "Halibut," entered the vicinity of the Marianas in mid-December 1943.

Initial experience in employing U.S. submarines in groups indicated that not all boats adhered to the established attack scheme. The commander of the first "wolfpack," for example, spoke out at a critique of the group's actions against joint attacks in the form rehearsed at exercises. He acknowledged that group employment of submarines was more successful in seeking out targets, but that this advantage was nullified in joint attacks, since this eliminated the freedom of action enjoyed by submarines mounting independent attacks.<sup>5</sup> The matter of command and control of a group of submarines also proved debatable. The commanders of the first two group stated that control of a "wolfpack" should be handled by the force commander from a shore command post. This suggestion was not adopted, however. The undersea forces command authorities believed that adoption of such a proposal would result in an increase in volume of radio traffic in the submarine-fleet command center radio net when a group's submarines were in their area of operations.

Summarizing the combat operations of U.S. submarines in the Pacific theater in 1943, prominent U.S. undersea forces researcher C. Blair notes: "Twenty months after the commencement of the war, submarine force commanders finally began employing wolfpack tactics. The three wolfpacks which left Pearl Harbor in the fall of 1943, however, were used more for joint search than for joint attacks, and it became obvious that although wolfpack tactics could lead to an increase in the number of vessels sunk, there was a great deal of perfecting to be done. Usually submarine commanders were against such tactics, especially when division commanders were on board, who would make their decisions and, attempting to coordinate the attack by the group's submarines, would interfere in the actions of the boat's commanding officer. Everybody believed that wolfpack tactics could result in submarines sinking one another. But nevertheless these tactics began to be employed."<sup>6</sup>

In April and at the beginning of May 1944 the group method of employment of U.S. submarines began to win recognition. This was fostered by the situation which had developed by the spring of 1944, when the Japanese introduced a system of large convoys escorted by substantial forces. The advance by U.S. forces across the Pacific had led to a decrease in potential U.S. submarine combat operational areas. More submarines were operating, attached to an elaborate system of bases.

Advances in electronics exerted considerable influence on employment of submarines in groups. By the beginning of 1944 U.S. submarines began to be equipped with type ST radars, designed to facilitate night torpedo attacks. The antennas of these radars, mounted on the periscope head, provided reliable enemy contact at ranges up to 50 cables with the boat at periscope depth. Type SI radars enabled submarines to make radar contact with a target at a distance of 80-95 cables, and a submarine would close surfaced until contact was made with the ST radar. The boat would then submerge and continue closing at periscope depth to the torpedo firing point. If transports and cargo ships were poorly ASW defended, submarines would approach the target to a range of 5-12 cables and fire a torpedo salvo.

Synthesis of the experience of submarine combat operations in the theater led to changes in organization of command and control of submarine groups from a shore command center. A coded designation system was adopted in order to improve security and reliability of transmission of instructions to groups of submarines; a code name, in combination with the group commander's name, was assigned to each group. Patrol areas, which previously had been designated by numbers, were assigned code names. For example, the area between the islands of Formosa, Luzon, and the Asian mainland was designated "Convoy College." The southern part of the East China Sea and the approaches to the Formosa Strait were designated "Maru Morgue" -- "death house for Japanese merchant ships."<sup>7</sup>

The combination of a coded designation for groups of submarines with a code name for their areas of operations led to a substantial replacement of call signs in the theater, increased reliability of transmission of instructions from a shore command center, and ensured secrecy of deployment or redeployment of groups and consequently the element of surprise in their actions.



In the fall of 1944 undersea forces command authorities, having synthesized the amassed experience, changed the system of organizing command of the groups. Now in most cases the senior of the group's submarine commanding officers would at the same time be designated group commander. An exception was made only in cases where the group was to carry out a particularly difficult mission. As W. Holmes writes, however, practical experience showed "that both with and without a special submarine group commander, problems of teamwork between submarines in joint attacks remained unresolved."<sup>8</sup> These problems remained unresolved right up to the end of the war. Therefore the U.S. method of group submarine actions can be called a method of joint search and independent attacks by individual boats. During the entire period of employment of wolfpack tactics (October 1943-May 1945), there did not occur a single joint coordinated attack against Japanese convoys, although the technical equipment carried by the submarines gave them the capability to execute such attacks. Excusing the difficulties experienced by U.S. submarines in this matter, T. Roscoe writes that "the technique of joint attack is too unwieldy and inefficient. It was soon abandoned, and the method of independent actions by attacking submarines, with joint convoy search, won recognition."<sup>9</sup>

In the undersea forces in the Southwestern Pacific, the group method of submarine utilization began to be employed in June 1944, when three boats, the "Flasher," "Crevalle," and "Angler" departed from Fremantle for combat operations in Philippine waters.<sup>10</sup> The actions of the groups formed of submarines based at Fremantle did not introduce any substantial changes in the established practice of group employment of submarines in the Pacific. There was merely an increase in the number of instances (in comparison with the submarines of the Pacific fleet) when two-boat groups went out on patrol.<sup>11</sup> This is due to the fact that in the zone of operations of undersea forces in the Southwestern Pacific, minimal-size submarine groups operated for the most part in straits, passages and in confined waters. All groups were led by the most experienced submarine commanders.

Group actions assumed the greatest scale in the period of preparation for and conduct of the large offensive operations mounted by U.S. forces in the latter half of 1944 and beginning of 1945. All involved landing operational and strategic assault forces. Depending on the operational situation, some groups formed at base, while others formed at sea, of independently operating submarines whose patrol areas were in close proximity.

A total of 117 submarine groups operated in the Pacific from October 1943 through May 1945.<sup>12</sup> The composition of the groups, their numbers and the undersea forces of the fleets from the submarines of which U.S. wolfpacks were formed are contained in the table.

It is evident from the table that 3-boat groups were the most common, totaling 74 combat patrols (63.25 percent). This was connected with the most successful variant of search for enemy targets in theater coastal-water areas and ensured adequate coordination of joint patrolling and sequence of attack. Twenty-five patrols (21.37 percent) of 2-boat groups involved operations in narrows and confined waters. There were very few group patrols involving more than three boats. Only 12 patrols (10.26 percent), for example, involved groups consisting of 4 submarines.

Table.\* Composition of Groups, Their Number and Distribution Between the Undersea Forces of the Pacific Fleet and the Southwestern Pacific Fleet (October 1943-May 1945)

Composition of Groups	Pacific Fleet	Southwestern	Pacific Theater	Total
	Undersea Forces, Number of Groups	Pacific Undersea Forces, Number of Groups	Number of Groups	Percentage of Total
Two boats	4	21	25	21.37
Three boats	51	23	74	63.25
Four boats	7	5	12	10.26
Five boats	1	3	4	3.41
Seven boats	1	1	2	1.71
Total	64	53	117	

\* Figures obtained from C. Lockwood, op. cit.,; T. Roscoe, op. cit.; C. Blair, op. cit, pp 901-983.

Groups containing 5 and 7 submarines were employed in six instances (5.12 percent), involving missions to sink enemy patrol ships in waters along the presumed routes of friendly carrier task forces, diversionary actions to draw off enemy forces from areas of probable passage of task forces, and to rescue the crews of downed aircraft.

The first such group, consisting of seven submarines of the Pacific Fleet undersea forces, was formed during the period of preparations for a strike on Tokyo in November 1944. On 10 November this group put out from its base on the island of Saipan with the mission of sweeping an area 180 miles in width to the southeast of Tokyo and sinking any ship encountered. It was believed that, by destroying patrol ships in this wide corridor, through which Admiral Spruance's 38th Task Force was to steam, the submarines would ensure the element of tactical surprise for the carrier-launched airstrike. In the course of combat actions the boats of this group sank four patrol ships but drew the attention of other enemy forces, thus reducing the probability that the task force could pass through undetected.

During preparations for Operation "Detachment" (capture of the island of Iwo Jima), it was decided to form two groups: a main group and a diversionary group.<sup>13</sup> The first group, consisting of five submarines and firing torpedoes, was to destroy Japanese patrol forces along the route of movement of the 58th Task Force, which was to strike Tokyo on 16 February 1945. The diversionary group, containing 3 submarines, was to conduct diversionary combat actions 200 miles west of the area of operations of the main group. The group's submarines were to attack surfaced, with artillery, all Japanese ships, but not to sink them until the latter had radioed the presence of U.S. submarines.

The groups began combat actions at dawn on 11 February 1945. The main group did not encounter a single patrol ship. The diversionary group made contact with an enemy ship on the basis of information obtained from an aircraft and sank it with gunfire.

Thus the Americans employed the method of group utilization of submarines in the Pacific theater along with operations by individual submarines. This became the principal method only in the period between April 1944 and May 1945 and for all practical purposes boiled down to conducting joint search by a group of submarines with subsequent attack by individual submarines. No joint attack was mounted in a single one of the 117 instances of group employment of submarines. But it proved effective even in the form in which it was employed in U.S. undersea forces, since it increased capabilities to detect the enemy.

In the course of the war U.S. submarines operating in groups logged 298 combat patrols (19 percent), and the total tonnage of Japanese warships and merchant vessels sunk by submarines on group patrol exceeded 1.5 million tons (28.5 percent). U.S. submariners achieved these results operating in conditions of weak defense of Japan's sea lines of communication; right up to the end of the war Japan was unable to organize protection and defense of its shipping.

The experience of group employment of submarines was synthesized in the postwar period. According to information in the foreign press, improvement of group tactics has proceeded along the line of development and practical utilization of new radio and underwater sound communications equipment, as well as equipping submarines and shore command facilities with high-speed automated undersea situation control and analysis systems.

#### FOOTNOTES

1. C. Blair, "Silent Victory. The U.S. Submarine War Against Japan," New York, 1975, page 900.
2. C. Lockwood, "Down to the Sea in Subs," New York, 1967, page 301.
3. R. Kuenne, "The Attack Submarine. A Study in Strategy," New Haven-London, 1965, pp 37-38.
4. "American Naval Fighting Ships," Vol 3, Washington, 1968, page 139.
5. Holmes, "Undersea Victory. The Influence of Submarine Operations on the War in the Pacific," New York, 1966, page 261.
6. Blair, op. cit., page 551.
7. T. Roscoe, "U.S. Submarine Operations in World War II," Annapolis, 1949, page 368.
8. Holmes, op. cit., page 369.
9. Roscoe, op. cit., page 343.
10. "American Naval Fighting Ships," Vol 2, Washington, 1963, pp 205, 414.

11. Of 53 cases of group operations by submarines of Southwestern Pacific undersea forces, on 21 occasions the group consisted of two boats.
12. Lockwood, op. cit., page 311. Lockwood's figures on the number of instances of group employment of submarines are confirmed by calculations based on Roscoe, op. cit., pp 504-506.
13. Roscoe, op. cit., pp 447-448.

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3024

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## COMMENTARY ON EVOLUTION OF U.S. VIEWS OF NUCLEAR WEAPONS IN COMBAT AND OPERATIONS

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[Article, published under the heading "In Foreign Armies," by Professor Maj Gen A. Slobodenko: "The Evolution of American Views on the Use of Nuclear Weapons in the Engagement and Operation"]

[Text] The United States of America was the first to build the most destructive weapon of the present day -- a nuclear weapon -- and without any military need whatsoever employed it against the Japanese cities of Hiroshima and Nagasaki (6 and 9 August 1945).

In delivering these nuclear strikes, the U.S. Government was primarily pursuing political objectives. In particular, it was counting on demonstrating the devastating might of its armed forces, believing that it had acquired a means of intimidating peoples, of blackmail and threats with the aid of so-called "atomic diplomacy," aimed at intimidating the world, and particularly the Soviet Union, at dictating U.S. terms on the Soviet Union and securing implementation of a policy "from a position of strength."

General Maxwell Taylor, who held the highest military positions in the United States, wrote the following: "The American people readily believed that the atomic bomb was an absolute weapon, which would enable the United States, the sole country to possess it, to maintain order throughout the world with the threat of its employment."<sup>1</sup>

In the initial period of development of nuclear weapons, principal attention in the United States was focused on building more powerful atomic bombs.<sup>2</sup> This was due to the fact that at that time U.S. military experts considered that its most advisable application was to destroy strategic targets and sought to obtain the capability to destroy a large target with a single burst. Therefore up to 1950 only strategic bombers were armed with atomic bombs. Their TNT equivalent was 100-120 kilotons.

Subsequently the United States has taken numerous steps to have at its disposal nuclear weapons of various designation. U.S. General Ridgeway argued, for example, that "if atomic weapons are used only for strategic purposes, it will take a great deal of time for the damage inflicted on the adversary to begin seriously affecting his troops in forward areas.... Defeat of the

enemy's armed forces should be our end military objective.... Victory in a future war should be determined primarily on the fields of battle, where nuclear weapons will be most extensively employed."3

Beginning in 1952, the overall program of development and production of nuclear weapons began to assign an important place to tactical weapons, alongside strategic weapons. In 1951-1952, for example, atomic bombs with yields from 5 to 100 kilotons became operational in the United States, bombs designed for tactical aircraft, and a 280 mm gun designed to fire both conventional and nuclear shells was developed in 1952-1953.

In addition to blast-effect atomic weapons, the principal casualty-producing elements of which are blast wave and luminous radiation, radioactive substances (RS) were to be employed in the engagement and operation -- special mixtures of radioactive isotopes designed to contaminate the ground and air, with the objective of exhausting and immobilizing enemy personnel, and enhancing the casualty effect of other weapons.

Operational-tactical nuclear weapons were considered to be weapons controlled by the theater force commander and army group commander. Therefore nuclear artillery subunits could be attached to a field army, and only in certain instances to an army corps. A field army operating on the main axis could be reinforced with one or two battalions (6-12 guns) of nuclear artillery and could employ them as elements of army or corps artillery groups.

The army and corps could obtain a very limited quantity of nuclear munitions. According to the experience of exercises, for example, in 1953 a field army was to be allocated up to 20-25 and an army corps operating on the main axis up to 10 such rounds (chiefly artillery shells). An army group performing an important operational mission could receive for an offensive operation up to 35-40 nuclear artillery rounds and bombs. It was stressed that the limited quantity of nuclear munitions allotted to large strategic formations required their economical expenditure, that is, employment against targets the destruction of which would exert considerable influence on the entire course of combat operations.

As was indicated in the U.S. press at that time, nuclear weapons cannot supplant other types of weapons, although they are the most powerful. Therefore initially these weapons were considered only a means supplementing and reinforcing conventional weapons on the battlefield, but which substantially increased the striking power and firepower of the combat troops and made it possible to conserve manpower resources and other means of combat as well as to accomplish combat missions in a relatively short period of time.

At the same time it was stressed that employment of nuclear weapons for close support of ground troops involved a certain danger that they would take casualties from friendly fire. For purposes of safety it was recommended that troops maintain a distance of 3-5 km from a burst ground zero in shelters or a distance of 5-7 km unsheltered. It was believed that targets located close to friendly troops should be hit with smaller-yield nuclear munitions, or else troops should be withdrawn to a safe distance.

Tactical nuclear weapons evolved rapidly in the United States in the period 1954-1960. In 1954, for example, weapons becoming operational included the Honest John unguided rocket, with a range of 25 km, the M-17 Corporal guided ballistic missile (160 km), and the B-61 Matador cruise missile (800-1000 km). The following became operational in 1956: the Lacrosse guided missile (32 km), as well as the Redstone ballistic missile (320 km). An artillery projectile with a nuclear warhead for the 203.2 mm howitzer was subsequently developed and became operational in 1957. Work was simultaneously in progress to improve nuclear munitions. This resulted in a substantial improvement in their specifications and performance characteristics (reduced weight and size, increased warhead utilization factor). Considerable attention was being devoted to development of medium, low and extremely low yield munitions (less than 1 kiloton).

By the end of the 1950's, in the interests of supporting combat operations, the Americans specified employment of the following types of weapons carrying nuclear warheads:

aircraft bombs and cruise missiles -- by decision of the theater commander and army group commanders;

guided missiles (close-range -- Corporal and Redstone) -- by order of army group commanders and field army commanders;

artillery shells and unguided rockets -- by decision of field army commanders and army corps commanders.

In 1958 nuclear weapons were made organic to U.S. ground forces divisions (a battery of 203.2 mm howitzers and batteries of Honest John unguided rockets). From this time on division commanders were also authorized to make the decision to employ such weapons.

The quantity of nuclear munitions placed at the disposal of combined units and large strategic formations for use in the engagement and operation was growing rapidly. This is evident from the table.

Table. Quantity of Nuclear Munitions Placed at the Disposal of Combined Units and Large Strategic Formations for Use in the Engagement and Operation

Combined Unit (Large Strategic Formation)	1952-1953	1956-1957	1960-1961
Division	-	-	5-9
Corps	8-10	20-30	30-40
Field Army	up to 20	80-120	up to 180
Army Group	35-40	160-200	200-300

Views on employment of nuclear weapons in the engagement and operation were gradually being refined. They were formulated in regulations and field manuals put out in the United States. Many articles dealing with this problem appeared in military periodicals in the mid-1950's. It was believed that decisive success could be achieved with massive employment of nuclear weapons, delivered

within a short period of time, over a large area, against the most important targets, and with immediate exploitation of strike results by ground troops. U.S. military experts believed that the most expedient action to provide close support of ground troops was employment of nuclear artillery and unguided rockets possessing adequate target-strike accuracy and capable of delivering fire regardless of weather. Following were considered the principal targets for such weapons: concentration areas for troops and combat equipment, troop dispositions; headquarters and close rear services facilities of combined units; bridges and crossing sites; junction rail yards and other large enemy targets and installations.

Guided missiles with considerable range capability were to be employed against targets located at operational depth. It was recommended, however, that one take into consideration their high degree of dispersion and, in view of this fact, it was suggested that fairly large-dimension targets be selected. As regards nuclear bombs, it was believed that they could be employed, depending on the situation, against targets both at tactical and operational depth.

As munitions were improved and as their numbers grew, the role of nuclear weapons in the U.S. armed forces operation evolved from a supporting to a principal role. By the end of the 1950's they were viewed as the principal means of achieving success in the engagement and operation. A new approach to determining ratios in men and weapons was proposed. Previously firepower had been compared in artillery pieces and air power in numbers of aircraft, while now it was recommended that primarily nuclear power be compared, that is, quantity and quality of nuclear munitions, as well as means of delivery. Thus arose the term "superiority in nuclear weapons" or "nuclear superiority."

In connection with an increase in the quantity of nuclear weapons placed at the disposal of combined units and large strategic formations, the demand of massive employment of these weapons was advanced. Nuclear strikes were to be delivered simultaneously throughout the entire tactical zone and on the immediate operational reserve, before troops shifted to the attack. The term "nuclear support of troops" in offense and defense arose.<sup>4</sup>

Nuclear preparation was considered to be the basis of such support, to be conducted by means of a simultaneous strike on preselected targets to considerable depth of the adversary's dispositions. From 60 to 70 percent of the total quantity of nuclear munitions released to the large strategic formation (combined unit) were to be expended on this support. Remaining warheads were to be employed in the course of the operation (engagement), as needed.

Nuclear counterpreparation was considered to be the basis of such support in the defense; in the process of nuclear counterpreparation, strikes were to be delivered on enemy troops poised to attack, with the aim of breaking up the attack. From 25 to 50 percent of the total number of nuclear warheads released to the combined unit (large strategic formation) were to be allocated for the conduct of such counterpreparation. The remaining warheads were to be employed primarily to support counterattacks and counterthrusts.

By the mid-1960's the United States had 22 different types of nuclear munitions which could be employed for operational-tactical purposes. The quantity of



nuclear weapons placed at the disposal of combined units and large strategic formations had increased substantially. This influenced subsequent development of views on their employment. Nuclear weapons became a means of massive attack of the enemy. The term "theater nuclear offensive" appeared. The purpose of such an offensive was to inflict maximum damage and casualties on the enemy in a short period of time, to gain nuclear superiority, to seize the initiative and establish favorable conditions for the conduct of operations by large strategic formations of the different branches of service, particularly ground forces.

So-called nuclear barriers were also to be established along natural lines (by destroying railway and highway bridges, major highway junctions, and generating high radiation levels), making it difficult to move troops and supplies up from depth. Such a barrier could stretch several hundred kilometers.

Up to the beginning of the 1960's, views on the conduct of war as a whole, theory and practice of preparing for and conducting operations and combat engagements were grounded on the strategy of "massive retaliation" which was adopted in the United States in 1953, a strategy which acknowledged the possibility of conducting against the Warsaw Pact countries only a general nuclear war with unlimited employment of nuclear weapons. At the strategic level they were counting on a mild nuclear strike on the part of the adversary, and at the operational-tactical level on superiority in nuclear weapons, in quantity and quality of nuclear warheads and means of delivery.

At the end of the 1950's and beginning of the 1960's, however, when the Soviet Union developed intercontinental ballistic missiles, and a balance of forces between East and West was acknowledged, the United States adopted a new strategy -- a strategy of "flexible response." It specified preparation for and conduct against the Warsaw Pact nations both of a general nuclear war and limited wars with and without the employment of nuclear weapons. Restriction on employment of nuclear weapons was specified on the basis of type of target, depth of strike, as well as warhead yield. The depth of nuclear weapon target strikes was limited to the combat operations area, that is, operational depth of disposition of enemy troops, and warhead yield was limited to 20 kt (up to 50 kt in certain instances).

In connection with adoption of this concept, NATO command authorities figured that if the stated objectives were not achieved with the aid of conventional weapons, NATO forces could employ nuclear weapons. This transition can be described as a sequential buildup in number and yield of nuclear warheads, depth of delivery of strikes and number of targets hit, or by delivery of massive nuclear strikes. In the latter case an important role was assigned to the first massive nuclear strike. It was believed that it should be decisive, that is, determine the course and outcome of the operation (battle) as a whole.

Since the number of warheads allocated to combined units for combat had increased sharply (50-60 to the division and 150-200 to the corps), they were designated not only for hitting individual targets of maximum importance but also for damaging the adversary's overall warfighting capability. This idea served as an impetus for development of a so-called nuclear "package" for the corps and "subpackages" for divisions. Depending on the possible combat

situation conditions, in time of peace the corps may have two to three types of nuclear "packages," which would be revised in the course of combat operations.

Consequently the number of nuclear warheads has become so great that at the present time planning the employment of nuclear weapons depends not on allocated number of nuclear warheads but on those missions which must be performed in order totally to destroy the adversary's battleworthiness.

Thus the views of U.S. military command authorities on the employment of nuclear weapons in the engagement and operation have evolved from delivery of individual strikes on separate targets to massive employment of nuclear weapons to the entire depth of the tactical order of battle, from employment of nuclear weapons as a supplement to conventional weaponry and a means of combat support to their employment as a decisive means of achieving victory.

At the present time the policy of U.S. military and political leaders pertaining to employment both of strategic and tactical nuclear weapons is particularly dangerous. Adopting a so-called strategy of "direct confrontation" and proceeding at a priority pace with the development of strategic offensive nuclear forces, the Reagan Administration is moving toward expansion of potential military conflicts.

The Soviet Union has recently come forth with a number of new peace initiatives. The Soviet Government has proposed reducing to one third the former level both sides' nuclear arsenals in Europe and designated for Europe, with subsequent total removal of intermediate-range and tactical nuclear missiles from that continent. As we know, our country initiated a unilateral moratorium on the deployment of intermediate-range nuclear arms in the European part of the USSR. The Soviet Government also advocates limiting and reducing strategic arms.

#### FOOTNOTES

1. M. Teylor, "Nenadezhnaya strategiya" [Unreliable Strategy], translated from English, Voenizdat, 1961, page 34.
2. The atomic bombs dropped on Hiroshima and Nagasaki were quite primitive. They were both heavy and large in size. Their nuclear warhead utilization factor did not exceed 3 percent.
3. COMBAT FORCES, March 1955.
4. U.S. Army Field Manual FM 100-31, pp 47, 53.

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3024

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## HISTORY OF DEFENSE AGAINST CHEMICAL WEAPONS REVIEWED

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[Article, published under the heading "Scientific Reports and Information," by Docent and Candidate of Historical Sciences Col (Res) V. Yakubov and Lt Col N. Skibinskiy: "From the History of Defense Against Chemical Weapons"; passages rendered in all capital letters printed in boldface in source]

[Text] The experience of history indicates that mass destruction weapons have always been for imperialism the most important coercive means in its arsenal. It is not mere happenstance that chemical weapons were employed on a large scale during World War I or that today aggressive imperialist circles assign a principal role to these weapons in carrying out their schemes.

"Adventurism and willingness to gamble away the vital interests of mankind for the sake of their narrow, selfish aims -- this is particularly glaringly manifested in the policies of the most aggressive imperialist circles," noted the CPSU Central Committee Accountability Report to the 26th CPSU Congress.<sup>1</sup> U.S. and NATO military leaders devote considerable attention in their aggressive aspirations, alongside improving nuclear and neutron weapons, to offensive chemical weapons, in the development of which one observes a trend toward the stockpiling of binary systems employing lethal toxic chemical agents such as VX and Sarin. All this demands of the Soviet Armed Forces constant preparedness for defense against an enemy sneak chemical attack.

In this article, proceeding from the experience of World War I and the Great Patriotic War, we shall analyze the causes behind the birth and development of defense against chemical weapons, since these issues are of considerable interest in present-day conditions as well.

The first massive employment of chlorine, on 22 April 1915 in the Ypres salient, demonstrated that chemical weapons are capable of swiftly inflicting mass casualties among unprotected personnel. This is why command personnel at all levels in the armies of the belligerent nations immediately proceeded to seek measures aimed at diminishing the casualty-producing effect of war gases. In a combat situation it was necessary promptly to detect preparation for or initiation of an enemy chemical attack and to warn friendly troops of such an attack, as well as to ensure protection of personnel in the course of enemy gas attacks.

Thus employment of chemical weapons dictated the necessity of developing a number of chemical defense measures,<sup>2</sup> which as a whole broke down into two groups. The first group consisted of preventive measures, including CW reconnaissance and warning troops of commencement of a chemical attack, while the latter included protective measures, namely: development of means of protection and provision of such means to the troops; teaching the troops protective measures as well as methods of neutralizing the consequences of employment of chemical weapons.

CHEMICAL RECONNAISSANCE AND WARNING THE TROOPS OF COMMENCEMENT OF A CHEMICAL ATTACK would be organized by the commanders of subunits, units, and by headquarters staffs. CW observation posts ("gas duty personnel") were placed for the most part at the forward edge of the battle area for around-the-clock surveillance, for the purpose of detecting enemy preparations to release gas or commencement of the latter. Warning troops ("gas alarms") of CW attack would be performed along the axes of spread of a gas cloud.

Improvement of CW reconnaissance and warning during World War I was dictated by changes in the means and methods of employment of chemical weapons. The importance of this measure increased when artillery began firing gas shells. Surprise gas shell attacks made it necessary to establish chemical reconnaissance not only ahead of the forward edge of the battle area but also in the disposition area of each subunit, to depth of artillery range. The role of organization and prompt warning of troops on an enemy chemical attack became more important, since it was necessary to utilize protective gear as quickly as possible.

Extensive EMPLOYMENT in World War I of choking-agent CHEMICAL WEAPONS DEMANDED THE DEVELOPMENT AND IMPROVEMENT OF MEANS OF PROTECTION AGAINST THEM. At first multilayer gauze bandages were used for this purpose, wetted by solutions neutralizing chemical agents (wet gas masks). Their poor protective and utilization properties, however, engendered the need for general-purpose means of protecting the respiratory organs. A charcoal respirator, proposed by Russian scientist N. D. Zelinskiy, provided protection against all war gases known at that time. Employment of blister gases from 1917 on required in turn the development of means of protecting the skin. Work in this area conducted during World War I laid down the foundation for subsequent research.

Providing troops with protective gear was an important and complex chemical defense measure. An important role in accomplishing this task was assigned throughout the entire war to resolving the problems of properly organizing a supply system. In particular, accomplishment of this task in the Russian army was initially assigned to the Medical and Evacuation Directorate and, through this directorate, to troop medical service agencies. Beginning in the summer of 1917, by order of the supreme commander of the Russian army, protective gear was designated as artillery supply items, and provision of such gear was transferred entirely to artillery supply agencies.<sup>3</sup>

In connection WITH PROTECTIVE GEAR BEING SUPPLIED TO THE TROOPS, IT WAS NECESSARY TO PROVIDE THE LATTER WITH PRACTICAL TRAINING IN CHEMICAL DEFENSE. Experience indicated that the most effective training method was that of



acquainting personnel with actual war gases by simulating the movement of a gas cloud and passing through it wearing protective gear. It was given the designation chemical (gas) okurivaniye [fumigation, gas training].<sup>4</sup> Beginning in 1917, as a rule antigas training detachments were operating in all armies of the belligerent nations, training troops in CW defense.<sup>5</sup>

Penetration and persistent presence of war gases in defensive works also predetermined organization of MEASURES TO NEUTRALIZE THE CONSEQUENCES OF ENEMY EMPLOYMENT OF CHEMICAL WEAPONS ("combating gases").<sup>6</sup> The experience of World War I indicated that three basic measures were employed for gas decontamination -- fire (heat), mechanical, and chemical. The fire method of gas decontamination consisted essentially in driving gaseous chemical agents from emplacements by heated air after burning combustible materials. The mechanical method of gas decontamination consisted in airing out emplacements with the aid of various materials at hand, as well as by removing the upper layer of contaminated soil or placing a layer of fresh dirt on contaminated areas. Chemical decontamination was based on neutralizing chemical agents by means of suitable chemical solutions and substances. This method was not widely employed during the war.

An increase in the number of chemical defense measures and their importance dictated the necessity of maintaining in the line units appropriate command and control agencies and special subunits. For example, in the latter half of 1916 specialists began to be assigned to the combined units and units of the Russian army, initially at the initiative of the troops and subsequently on an official basis, and chemical defense subunits began to be formed. In particular, non-T/O combined unit chemical defense chiefs were introduced in the divisions, and unit gas defense officers in the regiments. They were in charge of non-T/O chemical teams for chemical surveillance and for warning troops of chemical attack. In March 1917 regular T/O gas defense officers and teams were introduced by order of Headquarters, Supreme High Command.<sup>7</sup> This essentially signaled the beginning of development of organization and execution of chemical defense measures.

Following World War I the principal capitalist countries engaged in extensive efforts in order further to perfect chemical weapons, including chiefly mustard gas, lewisite, hydrocyanic acid, and phosgene. In addition to this, beginning in 1930 Germany conducted research on synthesizing highly toxic neuroparalytic effect agents -- tabun and Sarin. Means and methods of employing chemical weapons were being improved. In particular, considerable importance was attached to the use of aircraft and artillery for these purposes.

This is why the CPSU and Soviet Government, in view of the anti-Soviet thrust of the policies of the leading capitalist nations, were forced to devote adequate attention to improving chemical defense. The correctness of these measures was confirmed during the Great Patriotic War.

Even prior to attacking the USSR, fascist Germany was at a high degree of preparedness for extensive employment of chemical weapons. By March 1941, for example, the German-fascist army had an elaborated procedure of supplying from depots chemical munitions to each army group.<sup>8</sup> Under these conditions the

Supreme High Command, from the very first months of the war, demanded that chemical defense service be made a component of combat support and that the most resolute steps be taken to prevent underestimation of the chemical threat.<sup>9</sup> Troop chemical defense, as a category of combat (operational) support, was organized by commanders at all echelons, not only for the purpose of immediate protection of troops against the effect of toxic chemical agents, but also to ensure their freedom of actions during enemy employment of chemical weapons.<sup>10</sup> It included an aggregate of preventive and protective measures, as well as measures to neutralize the consequences of enemy employment of toxic chemical agents.<sup>11</sup> Since chemical reconnaissance has been discussed in this journal in the past,<sup>12</sup> we shall discuss organization and execution of protective measures.

First of all we should note that during the years of the Great Patriotic War AN IMMENSE JOB WAS DONE TO PROVIDE THE TROOPS WITH CHEMICAL WARFARE GEAR.<sup>13</sup> Up to the middle of the 1930's supervision and organization of provision of chemical warfare gear to the troops was handled by the corresponding CW service chiefs. On the eve of the Great Patriotic War these tasks were being handled by the military-technical service, while chemical bases and depots remained under the chemical service. Practical experience, however, revealed the necessity of transferring these functions from the military-technical supply service directly to the chemical service, which was accomplished in the spring of 1944. At the beginning of the war troops would be supplied with CW protective gear on the basis of 100 T/E requirements of units and the need to establish supply stocks. But in view of the fact that the enemy was not employing chemical weapons, and consequently protective means were not being expended, large quantities of unexpended gear accumulated in the units. This made storage and recordkeeping on stocks of supplies difficult, and also fostered unwarranted losses of protective gear, especially during the first months of the war. It was necessary to revise standard amounts of line-unit supply stocks of these items and to pay greater attention to matters pertaining to their storage and issue. According to a 14 December 1941 directive by the Chief of the General Staff, troops were to be provided only with personnel gas masks and chemical agent detector kits, which guaranteed prompt detection of enemy employment of chemical weapons and immediate protection of personnel against such weapons.<sup>14</sup> Beginning in November 1942, requirements in protective gear began to be figured not on the basis of the T/O strength but the actual personnel strength of a unit (combined unit). In addition, unit mobile stores of protective gear were reduced to 10 percent of the standard combat figure. A 16-day supply to meet the needs of line troops was established at army and front supply depots.<sup>15</sup>

In the second period of the Great Patriotic War, in order to achieve maximum reduction of protective gear losses, just prior to commencement of an offensive, gear would be brought to battalion ammunition supply points, which were to advance behind the combat formations, ready to issue protective gear to personnel in case of a threatened enemy use of chemical weapons. The experience of offensive operations conducted in 1943 and in the winter and spring of 1944 indicated that battalion ammunition supply points were unable to handle this task. There occurred instances of falling considerably behind fighting units, as well as loss of and damage to protective gear. In order to improve organization of transportation and storage of CW gear, composite detachments were established and attached to regimental and division chemical defense subunits, initially at

the initiative of the troops and subsequently by a directive issued by the chief of the Main Chemical Warfare Directorate dated 18 June 1944.<sup>16</sup>

Their principal task was to carry CW gear behind the combat formations of advancing troops and to issue it (if needed) to personnel. Sometimes the composite detachments (in the Bobruysk Operation of the First Belorussian Front and in the Iasi-Kishinev Operation of the Second Ukrainian Front) would be assigned the mission of chemical reconnaissance of areas retaken from the enemy and collection of CW gear on the battlefield. Establishment of composite detachments essentially signified separation of the CW equipment supply service and its detachment from the military-technical supply service.

We should stress that when combat operations advanced onto enemy soil, and there arose an even greater probability that the Hitlerites would employ chemical weapons, full individual protective gear was issued to personnel.<sup>17</sup>

Thus the experience of the Great Patriotic War showed that matters pertaining to providing the troops with CW gear were handled chiefly by establishing the most optimal forms and standards, and creating a uniform system of chemical service agencies.

ONE IMPORTANT CHEMICAL DEFENSE MEASURE in the course of the Great Patriotic War WAS WORK PERFORMED BY CHEMICAL SERVICE REPRESENTATIVES TO TRAIN THE TROOPS IN PRACTICAL EMPLOYMENT OF CHEMICAL GEAR AND TEACHING THEM TO FUNCTION WHILE WEARING THIS GEAR. As experience indicates, training troops in chemical defense was handled up to mid-1943 chiefly by chemical service representatives. A paramount role was assigned to chemical instructors and personnel of chemical defense subunits (units). An Hq SHC [Headquarters, Supreme High Command] directive issued 7 June 1943<sup>18</sup> assigned responsibility for the state of troop chemical defense training to the combined-arms commanders, as a result of which training was stepped up and became more concrete and systematic. The principal form of training consisted of practical drills to study the design and operation of the gas mask, to render self-assistance and mutual assistance when attacked with toxic chemical agents, as well as practice drills in employing protective gear in the course of combat actions. Personnel were taught the skills of gas decontamination of small arms, artillery and tanks, and crossing contaminated ground.

A particularly vigorous and systematic effort to train troops in chemical defense took place during the period of preparation for combat operations. Pursuant to the directive, troop gas mask drills were held on a regular basis. the continuous time during which troops would remain in gas masks was increased to 6-8 hours. During the Battle of Kursk, for example, the duration of continuous gas mask drills was increased to 8 hours for the troops of the Steppe Front.<sup>19</sup> Practical drills on fitting the gas mask were held in a room with a chemical agent simulator ("gas chamber training"). This made personnel more confident in the reliability of their protective gear and increased chemical discipline.

Thus practical experience was obtained in the Great Patriotic War in organizing and conducting troop chemical defense training, experience which has retained its significance up to the present day.



In the last war the chemical troops and chemical service did CONSIDERABLE WORK ON TRAINING personnel and preparing special equipment and gear FOR NEUTRALIZING THE CONSEQUENCES OF POTENTIAL ENEMY EMPLOYMENT OF CHEMICAL WEAPONS. Gas decontamination stations would be set up in all units, combined units, large strategic formations, and at all large rear services facilities in any combat situation; at these stations personnel would ready areas for decontaminating personnel, weapons and equipment, clothing and gear, as well as horses.<sup>20</sup> All this work was performed by the manpower of organic subunits (units) of the chemical, medical and veterinary services, while Supreme High Command Reserve chemical defense units (independent chemical defense battalions) were employed for this purpose at rear services establishments of the armies and fronts.

Thus although the enemy did not employ chemical weapons, Soviet troops were continuously ready to neutralize the effects of employment of chemical agents.

A LEADING ROLE IN ORGANIZING AND CARRYING OUT CHEMICAL DEFENSE MEASURES WAS PLAYED BY THE CHEMICAL SERVICE AND CHEMICAL DEFENSE TROOPS. They performed their assigned tasks under the supervision of the the Main Chemical Warfare Directorate.

In the front, chemical defense supervisory agencies were represented by a chemical directorate, and in the army by a chemical section. At the corps-regiment echelon corresponding chemical service chiefs were responsible for organizing chemical defense measures.

Analysis of the evolution of defense against chemical weapons indicates that principal measures clearly developed in the course of the Great Patriotic War as a type of combat (operational) support, in the organization and implementation of which an important principle was revealed -- securement of maximum independence to combined units, units and subunits in carrying out appropriate chemical defense measures. This served as a basis for further improvement of protection against mass destruction weapons.

During combat operations fascist Germany's military leaders saw time and again that the chemical defense of the Soviet Army's troops was at an adequate level and that consequently the effectiveness of employment of chemical weapons was negligible. Therefore one of the primary factors which kept the German-fascist forces from unleashing chemical warfare was the high degree of preparedness of the Soviet forces for chemical defense.

The experience in organizing protection against chemical weapons has retained its relevance up to the present day. And although the United States did sign the 1925 Geneva Protocol banning the use of choking, toxic and other such gases, after considering the matter for 50 years, it is engaged in intensive preparations for chemical warfare. More than 150,000 tons of chemical weapons are presently on hand at U.S. storage depots. These include almost 3 million artillery shells, several thousand aircraft bombs, hundreds of thousands of mines and approximately 1,500 spray tanks filled with toxic chemical agents. Laboratory research on improving chemical weapons is being conducted both under the auspices of U.S. military programs and in cooperation with other NATO member nations.<sup>21</sup> Great Britain is also attaching great importance to preparations



for chemical warfare: a huge center for development of chemical weapons and training chemical weapons specialists is under construction near the town of Porton Down.<sup>22</sup>

All these facts evoke sharp condemnation by peace advocates, who demand an end to preparations for war with the employment of this barbarous weapon.

#### FOOTNOTES

1. "Materialy XXVI s"yezda KPSS" [Proceedings of the 26th CPSU Congress], Moscow, Politizdat, 1981, page 20.
2. The term "protivokhimicheskaya zashchita" [chemical defense] was officially adopted in August 1941. In 1915-1922 defense against chemical weapons was called "protivogazovaya oborona" [antigas defense], and in 1923-1941 -- "protivokhimicheskaya oborona" [antichemical defense].
3. TsGVIA [USSR Central State Military Historical Archives], Fund 2145, List 1, File 23, sheets 284-287.
4. Ibid., Fund 2110, List 5, File 9, Sheet 136.
5. Ibid., Fund 2252, List 3, File 22, Sheet 114.
6. Neutralization of consequences is defined here as gas decontamination of the ground and various structures, which consists in neutralizing toxic chemical agents or their mechanical removal from a contaminated surface.
7. TsGVIA, Fund 2415, List 1, File 23, Sheet 273.
8. VOYENNO-ISTORICHESKIY ZHURNAL, No 2, 1959, page 80.
9. People's Commissar of Defense order dated 13 August 1941.
10. "Vremennoye nastavleniye po protivokhimicheskoy oborone" [Provisional Manual on Chemical Defense], Moscow-Leningrad, Department of Publications of the USSR People's Commissariat of Defense, 1936, page 17.
11. "Polevoy ustav Krasnoy Armii" [Red Army Field Service Regulations], Voenizdat, 1943, pp 77-78.
12. VOYENNO-ISTORICHESKIY ZHURNAL, No 7, 1982, pp 25-31.
13. Voenno-khimicheskoye imushchestvo [chemical warfare gear] is defined as protective gear (gas masks, protective capes and overboots, impregnated clothing and underclothing), chemical agent detector kits and decontamination devices.
14. M. V. Krasil'nikov and G. I. Petrov, "Istoriya khimicheskoy sluzhby i voysk khimicheskoy zashchity Sovetskoy Armii" [History of the Soviet Army Chemical Service and Chemical Defense Troops], Moscow, Izd. VAKhZ, 1958, page 133.

15. TsAMO [Central Archives of the Ministry of Defense], Fund 74, List 12308, File 152, Sheet 262.
16. Ibid., Fund 236, List 2765, File 8, sheets 8-11.
17. Krasil'nikov, op. cit., page 206.
18. TsAMO, Fund 74, List 12308, File 15, sheets 9-11.
19. Ibid., Fund 236, List 2765, File 8, sheets 8-11.
20. Ibid., Fund 74, List 12308, File 889, Sheet 24.
21. PRAVDA, 2 March 1982.
22. KRASNAYA ZVEZDA, 10 February 1982.

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